CO2_2_Final_Project_(RF_DETR_for_Object_Detection)

July 28, 2025

1 CO2.2 Final Project (RF-DETR for Object Detection)

This project focuses on training and evaluating an object detection model using RF-DETR, a Transformer-based architecture developed by Roboflow. The objective is to detect and classify animals within images using a custom dataset obtained from Roboflow Universe, formatted in the COCO standard. The workflow begins with installing the necessary dependencies and downloading the dataset. The RF-DETR model is then fine-tuned on the dataset for 15 epochs, using a small batch size with gradient accumulation to manage resource usage.

After training, the model's performance is assessed through inference on test images, comparing predicted detections to ground truth annotations. Visualizations are created using the Supervision library to highlight both true annotations and model predictions. Finally, a comprehensive evaluation is conducted using metrics such as mean Average Precision (mAP), a confusion matrix, accuracy, precision, recall, and F1 score. This project illustrates a complete deep learning pipeline for object detection, emphasizing the power and flexibility of Transformer-based models in computer vision.

Group 20

MARIA ALESSANDRA CAPILI

DARLA ZOLETA

1.0.1 Install dependencies

Install the rfdetr package version 1.1.0. The -q option makes the installation run quietly with minimal output.

```
[1]: !pip install -q rfdetr==1.1.0
```

```
                          266.3/266.3 kB
20.4 MB/s eta 0:00:00
  Installing build dependencies … done
  Getting requirements to build wheel … done
  Installing backend dependencies … done
  Preparing metadata (pyproject.toml) … done
                          131.6/131.6 kB
14.5 MB/s eta 0:00:00
                          363.4/363.4 MB
1.4 MB/s eta 0:00:00
```

13.8/13.8 MB

104.2 MB/s eta 0:00:00

24.6/24.6 MB

75.1 MB/s eta 0:00:00

883.7/883.7 kB

58.0 MB/s eta 0:00:00

664.8/664.8 MB

2.1 MB/s eta 0:00:00

211.5/211.5 MB

5.5 MB/s eta 0:00:00

56.3/56.3 MB

15.2 MB/s eta 0:00:00

127.9/127.9 MB

8.0 MB/s eta 0:00:00

207.5/207.5 MB

5.6 MB/s eta 0:00:00

21.1/21.1 MB

36.9 MB/s eta 0:00:00

17.6/17.6 MB

47.6 MB/s eta 0:00:00

57.9/57.9 kB

6.1 MB/s eta 0:00:00

2.3/2.3 MB

74.3 MB/s eta 0:00:00

1.5/1.5 MB

59.3 MB/s eta 0:00:00

372.8/372.8 kB

28.7 MB/s eta 0:00:00

207.2/207.2 kB

22.5 MB/s eta 0:00:00

44.8/44.8 kB

4.9 MB/s eta 0:00:00

86.9/86.9 kB

7.5 MB/s eta 0:00:00

66.8/66.8 kB

7.3 MB/s eta 0:00:00

49.9/49.9 MB

18.1 MB/s eta 0:00:00

220.7/220.7 kB

23.1 MB/s eta 0:00:00

1.2/1.2 MB

69.8 MB/s eta 0:00:00

4.2/4.2 MB

106.8 MB/s eta 0:00:00

837.4/837.4 kB

60.3 MB/s eta 0:00:00

1.6/1.6 MB

90.9 MB/s eta 0:00:00

```
Building wheel for fairscale (pyproject.toml) … done
```

1.1 Download dataset from Roboflow Universe

The dataset downloaded from Roboflow contains 1700 images, split into 70% training, 15% valida-
tion, and 15% test sets. Augmentation was applied by rotating images ±15 degrees, normalization
was added, and the dataset was exported in COCO format for use with the RFDetr model.

```python
[2]: #Get dataset from Roboflow using the roboflow library and an API key to access␣
     ↪a specific project and version.
     #This will download the dataset in COCO format for use in training or␣
     ↪evaluation.

     !pip install roboflow

     from roboflow import Roboflow
     rf = Roboflow(api_key="1PoFwaH9K5JIFWIk7yen")
     project = rf.workspace("ds4-eppen").project("animals-ij5d2-vwfnu")
     version = project.version(2)
     dataset = version.download("coco")
```

```
Requirement already satisfied: roboflow in /usr/local/lib/python3.11/dist-
packages (1.2.3)
Requirement already satisfied: certifi in /usr/local/lib/python3.11/dist-
packages (from roboflow) (2025.7.14)
Requirement already satisfied: idna==3.7 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (3.7)
Requirement already satisfied: cycler in /usr/local/lib/python3.11/dist-packages
(from roboflow) (0.12.1)
Requirement already satisfied: kiwisolver>=1.3.1 in
/usr/local/lib/python3.11/dist-packages (from roboflow) (1.4.8)
Requirement already satisfied: matplotlib in /usr/local/lib/python3.11/dist-
packages (from roboflow) (3.10.0)
Requirement already satisfied: numpy>=1.18.5 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (2.0.2)
Requirement already satisfied: opencv-python-headless==4.10.0.84 in
/usr/local/lib/python3.11/dist-packages (from roboflow) (4.10.0.84)
Requirement already satisfied: Pillow>=7.1.2 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (11.3.0)
Requirement already satisfied: pi-heif<2 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (1.0.0)
Requirement already satisfied: pillow-avif-plugin<2 in
/usr/local/lib/python3.11/dist-packages (from roboflow) (1.5.2)
Requirement already satisfied: python-dateutil in
/usr/local/lib/python3.11/dist-packages (from roboflow) (2.9.0.post0)
Requirement already satisfied: python-dotenv in /usr/local/lib/python3.11/dist-
packages (from roboflow) (1.1.1)
Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-
```

packages (from roboflow) (2.32.3)
Requirement already satisfied: six in /usr/local/lib/python3.11/dist-packages
(from roboflow) (1.17.0)
Requirement already satisfied: urllib3>=1.26.6 in
/usr/local/lib/python3.11/dist-packages (from roboflow) (2.5.0)
Requirement already satisfied: tqdm>=4.41.0 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (4.67.1)
Requirement already satisfied: PyYAML>=5.3.1 in /usr/local/lib/python3.11/dist-
packages (from roboflow) (6.0.2)
Requirement already satisfied: requests-toolbelt in
/usr/local/lib/python3.11/dist-packages (from roboflow) (1.0.0)
Requirement already satisfied: filetype in /usr/local/lib/python3.11/dist-
packages (from roboflow) (1.2.0)
Requirement already satisfied: contourpy>=1.0.1 in
/usr/local/lib/python3.11/dist-packages (from matplotlib->roboflow) (1.3.2)
Requirement already satisfied: fonttools>=4.22.0 in
/usr/local/lib/python3.11/dist-packages (from matplotlib->roboflow) (4.59.0)
Requirement already satisfied: packaging>=20.0 in
/usr/local/lib/python3.11/dist-packages (from matplotlib->roboflow) (25.0)
Requirement already satisfied: pyparsing>=2.3.1 in
/usr/local/lib/python3.11/dist-packages (from matplotlib->roboflow) (3.2.3)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.11/dist-packages (from requests->roboflow) (3.4.2)
loading Roboflow workspace…
loading Roboflow project…

Downloading Dataset Version Zip in animals-2 to coco:: 100%| |
78933/78933 [00:05<00:00, 13371.82it/s]

Extracting Dataset Version Zip to animals-2 in coco:: 100%| | 1708/1708
[00:00<00:00, 5603.76it/s]

```
[3]: #Create and train an RFDetr model using RFDETRBase() from the rfdetr library.
     #This trains the model for 15 epochs with a batch size of 4, gradient␣
       ↪accumulation of 4 steps, and a learning rate of 0.0001 using the dataset␣
       ↪downloaded earlier.


     from rfdetr import RFDETRBase


     model = RFDETRBase()


     model.train(dataset_dir=dataset.location, epochs=15, batch_size=4,␣
       ↪grad_accum_steps=4, lr=1e-4)
```

rf-detr-base.pth: 100%| | 355M/355M [00:17<00:00, 21.8MiB/s]
UserWarning:

config.json: 0%| | 0.00/547 [00:00<?, ?B/s]

model.safetensors: 0%| | 0.00/88.2M [00:00<?, ?B/s]

Loading pretrain weights

WARNING:rfdetr.detr:num_classes mismatch: model has 90 classes, but your dataset
has 11 classes
reinitializing your detection head with 11 classes.

TensorBoard logging initialized. To monitor logs, use 'tensorboard --logdir
output' and open http://localhost:6006/ in browser.
Not using distributed mode
git:
  sha: N/A, status: clean, branch: N/A

Namespace(num_classes=11, grad_accum_steps=4, amp=True, lr=0.0001,
lr_encoder=0.00015, batch_size=4, weight_decay=0.0001, epochs=15, lr_drop=100,
clip_max_norm=0.1, lr_vit_layer_decay=0.8, lr_component_decay=0.7,
do_benchmark=False, dropout=0, drop_path=0.0, drop_mode='standard',
drop_schedule='constant', cutoff_epoch=0, pretrained_encoder=None,
pretrain_weights='rf-detr-base.pth', pretrain_exclude_keys=None,
pretrain_keys_modify_to_load=None, pretrained_distiller=None,
encoder='dinov2_windowed_small', vit_encoder_num_layers=12,
window_block_indexes=None, position_embedding='sine', out_feature_indexes=[2, 5,
8, 11], freeze_encoder=False, layer_norm=True, rms_norm=False,
backbone_lora=False, force_no_pretrain=False, dec_layers=3,
dim_feedforward=2048, hidden_dim=256, sa_nheads=8, ca_nheads=16,
num_queries=300, group_detr=13, two_stage=True, projector_scale=['P4'],
lite_refpoint_refine=True, num_select=300, dec_n_points=2, decoder_norm='LN',
bbox_reparam=True, freeze_batch_norm=False, set_cost_class=2, set_cost_bbox=5,
set_cost_giou=2, cls_loss_coef=1.0, bbox_loss_coef=5, giou_loss_coef=2,
focal_alpha=0.25, aux_loss=True, sum_group_losses=False,
use_varifocal_loss=False, use_position_supervised_loss=False, ia_bce_loss=True,
dataset_file='roboflow', coco_path=None, dataset_dir='/content/animals-2',
square_resize_div_64=True, output_dir='output', dont_save_weights=False,
checkpoint_interval=10, seed=42, resume='', start_epoch=0, eval=False,
use_ema=True, ema_decay=0.993, ema_tau=100, num_workers=2, device='cuda',
world_size=1, dist_url='env://', sync_bn=True, fp16_eval=False,
encoder_only=False, backbone_only=False, resolution=560, use_cls_token=False,
multi_scale=True, expanded_scales=True, warmup_epochs=0, lr_scheduler='step',
lr_min_factor=0.0, early_stopping=False, early_stopping_patience=10,

early_stopping_min_delta=0.001, early_stopping_use_ema=False,
gradient_checkpointing=False, tensorboard=True, wandb=False, project=None,
run=None, class_names=['cat', 'chicken', 'cow', 'dog', 'fox', 'goat', 'horse',
'person', 'racoon', 'skunk'], distributed=False)
number of params: 31886690
[392, 448, 504, 560, 616, 672, 728, 784]
loading annotations into memory…
Done (t=0.02s)
creating index…
index created!
[392, 448, 504, 560, 616, 672, 728, 784]
loading annotations into memory…
Done (t=0.00s)
creating index…
index created!
Get benchmark
Start training
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87

UserWarning: torch.meshgrid: in an upcoming release, it will be required to pass
the indexing argument. (Triggered internally at
/pytorch/aten/src/ATen/native/TensorShape.cpp:3637.)

Epoch: [0] [0/87] eta: 0:15:41 lr: 0.000100 class_error: 100.00 loss:
12.1429 (12.1429) loss_ce: 1.2514 (1.2514) loss_bbox: 1.1705 (1.1705)
loss_giou: 0.3820 (0.3820) loss_ce_0: 1.1892 (1.1892) loss_bbox_0: 1.6101
(1.6101) loss_giou_0: 0.4983 (0.4983) loss_ce_1: 1.2499 (1.2499) loss_bbox_1:
1.2173 (1.2173) loss_giou_1: 0.3958 (0.3958) loss_ce_enc: 1.2014 (1.2014)
loss_bbox_enc: 1.4872 (1.4872) loss_giou_enc: 0.4898 (0.4898)
loss_ce_unscaled: 1.2514 (1.2514) class_error_unscaled: 100.0000 (100.0000)
loss_bbox_unscaled: 0.2341 (0.2341) loss_giou_unscaled: 0.1910 (0.1910)
cardinality_error_unscaled: 3896.7500 (3896.7500) loss_ce_0_unscaled: 1.1892
(1.1892) loss_bbox_0_unscaled: 0.3220 (0.3220) loss_giou_0_unscaled: 0.2492
(0.2492) cardinality_error_0_unscaled: 3162.0000 (3162.0000)
loss_ce_1_unscaled: 1.2499 (1.2499) loss_bbox_1_unscaled: 0.2435 (0.2435)
loss_giou_1_unscaled: 0.1979 (0.1979) cardinality_error_1_unscaled: 3844.2500
(3844.2500) loss_ce_enc_unscaled: 1.2014 (1.2014) loss_bbox_enc_unscaled:
0.2974 (0.2974) loss_giou_enc_unscaled: 0.2449 (0.2449)
cardinality_error_enc_unscaled: 3297.2500 (3297.2500) time: 10.8253 data:
1.3722 max mem: 8994
Epoch: [0] [10/87] eta: 0:09:01 lr: 0.000100 class_error: 97.90 loss:
11.9185 (11.4756) loss_ce: 1.2152 (1.2272) loss_bbox: 1.1705 (1.0892)
loss_giou: 0.4794 (0.4583) loss_ce_0: 1.1892 (1.2114) loss_bbox_0: 1.2453
(1.1813) loss_giou_0: 0.5238 (0.4969) loss_ce_1: 1.2017 (1.2242) loss_bbox_1:
1.1683 (1.1046) loss_giou_1: 0.4907 (0.4714) loss_ce_enc: 1.1572 (1.1779)
loss_bbox_enc: 1.4004 (1.2784) loss_giou_enc: 0.5978 (0.5548)
loss_ce_unscaled: 1.2152 (1.2272) class_error_unscaled: 92.3077 (88.6355)

loss_bbox_unscaled: 0.2341 (0.2178) loss_giou_unscaled: 0.2397 (0.2291)
cardinality_error_unscaled: 3895.2500 (3892.9773) loss_ce_0_unscaled: 1.1892
(1.2114) loss_bbox_0_unscaled: 0.2491 (0.2363) loss_giou_0_unscaled: 0.2619
(0.2484) cardinality_error_0_unscaled: 3162.0000 (3153.5455)
loss_ce_1_unscaled: 1.2017 (1.2242) loss_bbox_1_unscaled: 0.2337 (0.2209)
loss_giou_1_unscaled: 0.2453 (0.2357) cardinality_error_1_unscaled: 3844.2500
(3835.3864) loss_ce_enc_unscaled: 1.1572 (1.1779) loss_bbox_enc_unscaled:
0.2801 (0.2557) loss_giou_enc_unscaled: 0.2989 (0.2774)
cardinality_error_enc_unscaled: 3355.2500 (3358.3409) time: 7.0336 data:
0.1653 max mem: 9229
Epoch: [0] [20/87] eta: 0:07:57 lr: 0.000100 class_error: 91.03 loss:
10.7869 (10.7453) loss_ce: 1.2662 (1.2650) loss_bbox: 0.8902 (0.9511)
loss_giou: 0.3246 (0.3853) loss_ce_0: 1.2765 (1.2573) loss_bbox_0: 0.9291
(1.0212) loss_giou_0: 0.3817 (0.4197) loss_ce_1: 1.2741 (1.2633) loss_bbox_1:
0.9024 (0.9610) loss_giou_1: 0.3442 (0.3954) loss_ce_enc: 1.2258 (1.2161)
loss_bbox_enc: 1.0619 (1.1257) loss_giou_enc: 0.4650 (0.4841)
loss_ce_unscaled: 1.2662 (1.2650) class_error_unscaled: 86.5385 (81.6047)
loss_bbox_unscaled: 0.1780 (0.1902) loss_giou_unscaled: 0.1623 (0.1926)
cardinality_error_unscaled: 3897.5000 (3895.4286) loss_ce_0_unscaled: 1.2765
(1.2573) loss_bbox_0_unscaled: 0.1858 (0.2042) loss_giou_0_unscaled: 0.1909
(0.2099) cardinality_error_0_unscaled: 3546.5000 (3417.7976)
loss_ce_1_unscaled: 1.2741 (1.2633) loss_bbox_1_unscaled: 0.1805 (0.1922)
loss_giou_1_unscaled: 0.1721 (0.1977) cardinality_error_1_unscaled: 3860.5000
(3851.2738) loss_ce_enc_unscaled: 1.2258 (1.2161) loss_bbox_enc_unscaled:
0.2124 (0.2251) loss_giou_enc_unscaled: 0.2325 (0.2421)
cardinality_error_enc_unscaled: 3409.0000 (3418.4048) time: 6.9431 data:
0.0510 max mem: 9229
Epoch: [0] [30/87] eta: 0:06:40 lr: 0.000100 class_error: 65.38 loss:
7.7863 (9.6954) loss_ce: 1.3674 (1.3101) loss_bbox: 0.3499 (0.7326)
loss_giou: 0.1736 (0.3062) loss_ce_0: 1.3930 (1.3163) loss_bbox_0: 0.3388
(0.7778) loss_giou_0: 0.1881 (0.3295) loss_ce_1: 1.3681 (1.3053) loss_bbox_1:
0.3628 (0.7451) loss_giou_1: 0.1983 (0.3164) loss_ce_enc: 1.3269 (1.2678)
loss_bbox_enc: 0.4634 (0.8897) loss_giou_enc: 0.2857 (0.3986)
loss_ce_unscaled: 1.3674 (1.3101) class_error_unscaled: 69.2308 (77.1850)
loss_bbox_unscaled: 0.0700 (0.1465) loss_giou_unscaled: 0.0868 (0.1531)
cardinality_error_unscaled: 3898.2500 (3896.3710) loss_ce_0_unscaled: 1.3930
(1.3163) loss_bbox_0_unscaled: 0.0678 (0.1556) loss_giou_0_unscaled: 0.0941
(0.1648) cardinality_error_0_unscaled: 3700.2500 (3501.7984)
loss_ce_1_unscaled: 1.3681 (1.3053) loss_bbox_1_unscaled: 0.0726 (0.1490)
loss_giou_1_unscaled: 0.0992 (0.1582) cardinality_error_1_unscaled: 3872.5000
(3852.4113) loss_ce_enc_unscaled: 1.3269 (1.2678) loss_bbox_enc_unscaled:
0.0927 (0.1779) loss_giou_enc_unscaled: 0.1429 (0.1993)
cardinality_error_enc_unscaled: 3548.5000 (3489.1613) time: 7.0230 data:
0.0540 max mem: 9229
Epoch: [0] [40/87] eta: 0:05:31 lr: 0.000100 class_error: 59.62 loss:
7.4369 (9.1809) loss_ce: 1.4139 (1.3436) loss_bbox: 0.2412 (0.6184)
loss_giou: 0.1268 (0.2680) loss_ce_0: 1.4448 (1.3484) loss_bbox_0: 0.2197
(0.6601) loss_giou_0: 0.1341 (0.2892) loss_ce_1: 1.4066 (1.3299) loss_bbox_1:

0.2688 (0.6306) loss_giou_1: 0.1365 (0.2774) loss_ce_enc: 1.3768 (1.2951)
loss_bbox_enc: 0.3708 (0.7646) loss_giou_enc: 0.2122 (0.3557)
loss_ce_unscaled: 1.4139 (1.3436) class_error_unscaled: 63.0769 (73.1147)
loss_bbox_unscaled: 0.0482 (0.1237) loss_giou_unscaled: 0.0634 (0.1340)
cardinality_error_unscaled: 3898.2500 (3896.5793) loss_ce_0_unscaled: 1.4448
(1.3484) loss_bbox_0_unscaled: 0.0439 (0.1320) loss_giou_0_unscaled: 0.0671
(0.1446) cardinality_error_0_unscaled: 3700.2500 (3553.1646)
loss_ce_1_unscaled: 1.4066 (1.3299) loss_bbox_1_unscaled: 0.0538 (0.1261)
loss_giou_1_unscaled: 0.0682 (0.1387) cardinality_error_1_unscaled: 3828.5000
(3839.9390) loss_ce_enc_unscaled: 1.3768 (1.2951) loss_bbox_enc_unscaled:
0.0742 (0.1529) loss_giou_enc_unscaled: 0.1061 (0.1778)
cardinality_error_enc_unscaled: 3665.7500 (3532.2500) time: 6.9570 data:
0.0511 max mem: 9229
Epoch: [0] [50/87] eta: 0:04:21 lr: 0.000100 class_error: 47.69 loss:
7.3543 (8.7991) loss_ce: 1.4348 (1.3534) loss_bbox: 0.2510 (0.5449)
loss_giou: 0.1222 (0.2404) loss_ce_0: 1.4737 (1.3751) loss_bbox_0: 0.2197
(0.5718) loss_giou_0: 0.1103 (0.2544) loss_ce_1: 1.3950 (1.3414) loss_bbox_1:
0.2377 (0.5555) loss_giou_1: 0.1262 (0.2485) loss_ce_enc: 1.4077 (1.3185)
loss_bbox_enc: 0.3503 (0.6760) loss_giou_enc: 0.1825 (0.3192)
loss_ce_unscaled: 1.4348 (1.3534) class_error_unscaled: 53.8462 (69.4267)
loss_bbox_unscaled: 0.0502 (0.1090) loss_giou_unscaled: 0.0611 (0.1202)
cardinality_error_unscaled: 3895.0000 (3894.8873) loss_ce_0_unscaled: 1.4737
(1.3751) loss_bbox_0_unscaled: 0.0439 (0.1144) loss_giou_0_unscaled: 0.0551
(0.1272) cardinality_error_0_unscaled: 3761.2500 (3585.9020)
loss_ce_1_unscaled: 1.3950 (1.3414) loss_bbox_1_unscaled: 0.0475 (0.1111)
loss_giou_1_unscaled: 0.0631 (0.1243) cardinality_error_1_unscaled: 3800.0000
(3826.5196) loss_ce_enc_unscaled: 1.4077 (1.3185) loss_bbox_enc_unscaled:
0.0701 (0.1352) loss_giou_enc_unscaled: 0.0912 (0.1596)
cardinality_error_enc_unscaled: 3665.7500 (3551.2843) time: 7.0970 data:
0.0498 max mem: 9229
Epoch: [0] [60/87] eta: 0:03:09 lr: 0.000100 class_error: 55.38 loss:
7.1785 (8.5554) loss_ce: 1.3269 (1.3420) loss_bbox: 0.2526 (0.5020)
loss_giou: 0.1132 (0.2283) loss_ce_0: 1.4843 (1.3877) loss_bbox_0: 0.1695
(0.5188) loss_giou_0: 0.0979 (0.2379) loss_ce_1: 1.3624 (1.3419) loss_bbox_1:
0.2358 (0.5081) loss_giou_1: 0.1092 (0.2342) loss_ce_enc: 1.4200 (1.3332)
loss_bbox_enc: 0.2993 (0.6208) loss_giou_enc: 0.1557 (0.3004)
loss_ce_unscaled: 1.3269 (1.3420) class_error_unscaled: 47.6923 (65.1750)
loss_bbox_unscaled: 0.0505 (0.1004) loss_giou_unscaled: 0.0566 (0.1142)
cardinality_error_unscaled: 3842.7500 (3830.1311) loss_ce_0_unscaled: 1.4843
(1.3877) loss_bbox_0_unscaled: 0.0339 (0.1038) loss_giou_0_unscaled: 0.0489
(0.1190) cardinality_error_0_unscaled: 3681.7500 (3547.2254)
loss_ce_1_unscaled: 1.3624 (1.3419) loss_bbox_1_unscaled: 0.0472 (0.1016)
loss_giou_1_unscaled: 0.0546 (0.1171) cardinality_error_1_unscaled: 3609.0000
(3724.9918) loss_ce_enc_unscaled: 1.4200 (1.3332) loss_bbox_enc_unscaled:
0.0599 (0.1242) loss_giou_enc_unscaled: 0.0779 (0.1502)
cardinality_error_enc_unscaled: 3598.2500 (3546.0984) time: 7.0045 data:
0.0485 max mem: 9229
Epoch: [0] [70/87] eta: 0:01:59 lr: 0.000100 class_error: 66.15 loss:

7.1785 (8.4212) loss_ce: 1.2444 (1.3195) loss_bbox: 0.2888 (0.4811)
loss_giou: 0.1461 (0.2301) loss_ce_0: 1.4435 (1.3899) loss_bbox_0: 0.2158
(0.4917) loss_giou_0: 0.1133 (0.2360) loss_ce_1: 1.2816 (1.3263) loss_bbox_1:
0.2613 (0.4862) loss_giou_1: 0.1244 (0.2363) loss_ce_enc: 1.4304 (1.3389)
loss_bbox_enc: 0.2971 (0.5894) loss_giou_enc: 0.1610 (0.2960)
loss_ce_unscaled: 1.2444 (1.3195) class_error_unscaled: 36.5385 (62.1806)
loss_bbox_unscaled: 0.0578 (0.0962) loss_giou_unscaled: 0.0730 (0.1150)
cardinality_error_unscaled: 3208.7500 (3724.5352) loss_ce_0_unscaled: 1.4435
(1.3899) loss_bbox_0_unscaled: 0.0432 (0.0983) loss_giou_0_unscaled: 0.0567
(0.1180) cardinality_error_0_unscaled: 3107.0000 (3469.7535)
loss_ce_1_unscaled: 1.2816 (1.3263) loss_bbox_1_unscaled: 0.0523 (0.0972)
loss_giou_1_unscaled: 0.0622 (0.1181) cardinality_error_1_unscaled: 3093.5000
(3623.4014) loss_ce_enc_unscaled: 1.4304 (1.3389) loss_bbox_enc_unscaled:
0.0594 (0.1179) loss_giou_enc_unscaled: 0.0805 (0.1480)
cardinality_error_enc_unscaled: 3519.5000 (3544.5915) time: 7.0553 data:
0.0496 max mem: 9229
Epoch: [0] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 16.92 loss:
7.1750 (8.3086) loss_ce: 1.1600 (1.3036) loss_bbox: 0.3175 (0.4641)
loss_giou: 0.1926 (0.2302) loss_ce_0: 1.4293 (1.3908) loss_bbox_0: 0.2267
(0.4671) loss_giou_0: 0.1453 (0.2337) loss_ce_1: 1.2447 (1.3168) loss_bbox_1:
0.3182 (0.4673) loss_giou_1: 0.1672 (0.2352) loss_ce_enc: 1.4338 (1.3446)
loss_bbox_enc: 0.3060 (0.5638) loss_giou_enc: 0.1697 (0.2915)
loss_ce_unscaled: 1.1600 (1.3036) class_error_unscaled: 34.6154 (59.3354)
loss_bbox_unscaled: 0.0635 (0.0928) loss_giou_unscaled: 0.0963 (0.1151)
cardinality_error_unscaled: 3256.5000 (3690.3117) loss_ce_0_unscaled: 1.4293
(1.3908) loss_bbox_0_unscaled: 0.0453 (0.0934) loss_giou_0_unscaled: 0.0727
(0.1168) cardinality_error_0_unscaled: 3082.0000 (3428.3179)
loss_ce_1_unscaled: 1.2447 (1.3168) loss_bbox_1_unscaled: 0.0636 (0.0935)
loss_giou_1_unscaled: 0.0836 (0.1176) cardinality_error_1_unscaled: 3157.7500
(3581.5617) loss_ce_enc_unscaled: 1.4338 (1.3446) loss_bbox_enc_unscaled:
0.0612 (0.1128) loss_giou_enc_unscaled: 0.0849 (0.1458)
cardinality_error_enc_unscaled: 3545.0000 (3542.9630) time: 7.1881 data:
0.0503 max mem: 9230
Epoch: [0] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 23.08 loss:
7.2284 (8.2530) loss_ce: 1.1552 (1.2882) loss_bbox: 0.3582 (0.4567)
loss_giou: 0.1933 (0.2334) loss_ce_0: 1.4112 (1.3887) loss_bbox_0: 0.2630
(0.4566) loss_giou_0: 0.1453 (0.2356) loss_ce_1: 1.2274 (1.3072) loss_bbox_1:
0.3512 (0.4587) loss_giou_1: 0.1672 (0.2373) loss_ce_enc: 1.4231 (1.3452)
loss_bbox_enc: 0.3363 (0.5522) loss_giou_enc: 0.1867 (0.2930)
loss_ce_unscaled: 1.1552 (1.2882) class_error_unscaled: 33.8462 (57.1310)
loss_bbox_unscaled: 0.0716 (0.0913) loss_giou_unscaled: 0.0967 (0.1167)
cardinality_error_unscaled: 3540.7500 (3695.6810) loss_ce_0_unscaled: 1.4112
(1.3887) loss_bbox_0_unscaled: 0.0526 (0.0913) loss_giou_0_unscaled: 0.0727
(0.1178) cardinality_error_0_unscaled: 3138.0000 (3429.8793)
loss_ce_1_unscaled: 1.2274 (1.3072) loss_bbox_1_unscaled: 0.0702 (0.0917)
loss_giou_1_unscaled: 0.0836 (0.1186) cardinality_error_1_unscaled: 3342.7500
(3571.7299) loss_ce_enc_unscaled: 1.4231 (1.3452) loss_bbox_enc_unscaled:
0.0673 (0.1104) loss_giou_enc_unscaled: 0.0934 (0.1465)

cardinality_error_enc_unscaled: 3593.7500 (3549.0948) time: 7.1809 data: 0.0497 max mem: 9230
Epoch: [0] Total time: 0:10:15 (7.0785 s / it)
Averaged stats: lr: 0.000100 class_error: 23.08 loss: 7.2284 (8.2530)
loss_ce: 1.1552 (1.2882) loss_bbox: 0.3582 (0.4567) loss_giou: 0.1933 (0.2334)
loss_ce_0: 1.4112 (1.3887) loss_bbox_0: 0.2630 (0.4566) loss_giou_0: 0.1453
(0.2356) loss_ce_1: 1.2274 (1.3072) loss_bbox_1: 0.3512 (0.4587) loss_giou_1:
0.1672 (0.2373) loss_ce_enc: 1.4231 (1.3452) loss_bbox_enc: 0.3363 (0.5522)
loss_giou_enc: 0.1867 (0.2930) loss_ce_unscaled: 1.1552 (1.2882)
class_error_unscaled: 33.8462 (57.1310) loss_bbox_unscaled: 0.0716 (0.0913)
loss_giou_unscaled: 0.0967 (0.1167) cardinality_error_unscaled: 3540.7500
(3695.6810) loss_ce_0_unscaled: 1.4112 (1.3887) loss_bbox_0_unscaled: 0.0526
(0.0913) loss_giou_0_unscaled: 0.0727 (0.1178) cardinality_error_0_unscaled:
3138.0000 (3429.8793) loss_ce_1_unscaled: 1.2274 (1.3072)
loss_bbox_1_unscaled: 0.0702 (0.0917) loss_giou_1_unscaled: 0.0836 (0.1186)
cardinality_error_1_unscaled: 3342.7500 (3571.7299) loss_ce_enc_unscaled:
1.4231 (1.3452) loss_bbox_enc_unscaled: 0.0673 (0.1104)
loss_giou_enc_unscaled: 0.0934 (0.1465) cardinality_error_enc_unscaled:
3593.7500 (3549.0948)
Test: [0/38] eta: 0:00:28 class_error: 50.00 loss: 6.9711 (6.9711)
loss_ce: 1.2344 (1.2344) loss_bbox: 0.2606 (0.2606) loss_giou: 0.1459 (0.1459)
loss_ce_0: 1.5469 (1.5469) loss_bbox_0: 0.1866 (0.1866) loss_giou_0: 0.1059
(0.1059) loss_ce_1: 1.3281 (1.3281) loss_bbox_1: 0.1921 (0.1921) loss_giou_1:
0.1143 (0.1143) loss_ce_enc: 1.5000 (1.5000) loss_bbox_enc: 0.2359 (0.2359)
loss_giou_enc: 0.1205 (0.1205) loss_ce_unscaled: 1.2344 (1.2344)
class_error_unscaled: 50.0000 (50.0000) loss_bbox_unscaled: 0.0521 (0.0521)
loss_giou_unscaled: 0.0729 (0.0729) cardinality_error_unscaled: 288.5000
(288.5000) loss_ce_0_unscaled: 1.5469 (1.5469) loss_bbox_0_unscaled: 0.0373
(0.0373) loss_giou_0_unscaled: 0.0530 (0.0530) cardinality_error_0_unscaled:
283.5000 (283.5000) loss_ce_1_unscaled: 1.3281 (1.3281) loss_bbox_1_unscaled:
0.0384 (0.0384) loss_giou_1_unscaled: 0.0571 (0.0571)
cardinality_error_1_unscaled: 243.7500 (243.7500) loss_ce_enc_unscaled: 1.5000
(1.5000) loss_bbox_enc_unscaled: 0.0472 (0.0472) loss_giou_enc_unscaled:
0.0602 (0.0602) cardinality_error_enc_unscaled: 291.7500 (291.7500) time:
0.7397 data: 0.3086 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 85.71 loss: 7.0249 (7.2004)
loss_ce: 1.1094 (1.1335) loss_bbox: 0.2753 (0.3137) loss_giou: 0.1674 (0.2234)
loss_ce_0: 1.4688 (1.4368) loss_bbox_0: 0.1971 (0.2548) loss_giou_0: 0.1402
(0.1901) loss_ce_1: 1.2656 (1.2621) loss_bbox_1: 0.2472 (0.2638) loss_giou_1:
0.1399 (0.1863) loss_ce_enc: 1.4688 (1.4226) loss_bbox_enc: 0.2359 (0.3030)
loss_giou_enc: 0.1412 (0.2102) loss_ce_unscaled: 1.1094 (1.1335)
class_error_unscaled: 50.0000 (45.4040) loss_bbox_unscaled: 0.0551 (0.0627)
loss_giou_unscaled: 0.0837 (0.1117) cardinality_error_unscaled: 292.7500
(291.2045) loss_ce_0_unscaled: 1.4688 (1.4368) loss_bbox_0_unscaled: 0.0394
(0.0510) loss_giou_0_unscaled: 0.0701 (0.0951) cardinality_error_0_unscaled:
276.7500 (271.9091) loss_ce_1_unscaled: 1.2656 (1.2621) loss_bbox_1_unscaled:
0.0494 (0.0528) loss_giou_1_unscaled: 0.0700 (0.0932)
cardinality_error_1_unscaled: 243.7500 (245.2500) loss_ce_enc_unscaled: 1.4688

(1.4226) loss_bbox_enc_unscaled: 0.0472 (0.0606) loss_giou_enc_unscaled: 0.0706 (0.1051) cardinality_error_enc_unscaled: 283.2500 (275.9773) time: 0.3122 data: 0.0435 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 45.45 loss: 7.0249 (7.1094) loss_ce: 1.1406 (1.1648) loss_bbox: 0.2777 (0.2920) loss_giou: 0.1979 (0.1988) loss_ce_0: 1.4219 (1.4505) loss_bbox_0: 0.1971 (0.2306) loss_giou_0: 0.1519 (0.1680) loss_ce_1: 1.2344 (1.2790) loss_bbox_1: 0.2187 (0.2478) loss_giou_1: 0.1399 (0.1731) loss_ce_enc: 1.4141 (1.4356) loss_bbox_enc: 0.2176 (0.2752) loss_giou_enc: 0.1694 (0.1940) loss_ce_unscaled: 1.1406 (1.1648) class_error_unscaled: 44.4444 (42.5349) loss_bbox_unscaled: 0.0555 (0.0584) loss_giou_unscaled: 0.0989 (0.0994) cardinality_error_unscaled: 292.2500 (291.3690) loss_ce_0_unscaled: 1.4219 (1.4505) loss_bbox_0_unscaled: 0.0394 (0.0461) loss_giou_0_unscaled: 0.0760 (0.0840) cardinality_error_0_unscaled: 276.7500 (271.9643) loss_ce_1_unscaled: 1.2344 (1.2790) loss_bbox_1_unscaled: 0.0437 (0.0496) loss_giou_1_unscaled: 0.0700 (0.0865) cardinality_error_1_unscaled: 244.5000 (246.6071) loss_ce_enc_unscaled: 1.4141 (1.4356) loss_bbox_enc_unscaled: 0.0435 (0.0550) loss_giou_enc_unscaled: 0.0847 (0.0970) cardinality_error_enc_unscaled: 276.7500 (271.1548) time: 0.2991 data: 0.0182 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 11.11 loss: 6.6716 (6.9530) loss_ce: 1.1328 (1.1264) loss_bbox: 0.2431 (0.2751) loss_giou: 0.1768 (0.1941) loss_ce_0: 1.4219 (1.4405) loss_bbox_0: 0.1653 (0.2156) loss_giou_0: 0.1519 (0.1654) loss_ce_1: 1.2031 (1.2365) loss_bbox_1: 0.1971 (0.2358) loss_giou_1: 0.1543 (0.1735) loss_ce_enc: 1.4453 (1.4337) loss_bbox_enc: 0.2217 (0.2638) loss_giou_enc: 0.1682 (0.1925) loss_ce_unscaled: 1.1328 (1.1264) class_error_unscaled: 20.0000 (34.2998) loss_bbox_unscaled: 0.0486 (0.0550) loss_giou_unscaled: 0.0884 (0.0971) cardinality_error_unscaled: 292.0000 (290.7419) loss_ce_0_unscaled: 1.4219 (1.4405) loss_bbox_0_unscaled: 0.0331 (0.0431) loss_giou_0_unscaled: 0.0760 (0.0827) cardinality_error_0_unscaled: 278.0000 (274.1855) loss_ce_1_unscaled: 1.2031 (1.2365) loss_bbox_1_unscaled: 0.0394 (0.0472) loss_giou_1_unscaled: 0.0771 (0.0868) cardinality_error_1_unscaled: 263.0000 (249.8065) loss_ce_enc_unscaled: 1.4453 (1.4337) loss_bbox_enc_unscaled: 0.0443 (0.0528) loss_giou_enc_unscaled: 0.0841 (0.0963) cardinality_error_enc_unscaled: 259.0000 (270.3387) time: 0.2998 data: 0.0185 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 6.7047 (6.9672) loss_ce: 1.1250 (1.1244) loss_bbox: 0.2227 (0.2769) loss_giou: 0.1665 (0.1992) loss_ce_0: 1.4219 (1.4383) loss_bbox_0: 0.1726 (0.2168) loss_giou_0: 0.1271 (0.1682) loss_ce_1: 1.2109 (1.2365) loss_bbox_1: 0.1971 (0.2353) loss_giou_1: 0.1612 (0.1780) loss_ce_enc: 1.4297 (1.4266) loss_bbox_enc: 0.2334 (0.2681) loss_giou_enc: 0.1590 (0.1988) loss_ce_unscaled: 1.1250 (1.1244) class_error_unscaled: 20.0000 (31.6093) loss_bbox_unscaled: 0.0445 (0.0554) loss_giou_unscaled: 0.0832 (0.0996) cardinality_error_unscaled: 292.2500 (291.0461) loss_ce_0_unscaled: 1.4219 (1.4383) loss_bbox_0_unscaled: 0.0345 (0.0434) loss_giou_0_unscaled: 0.0636 (0.0841) cardinality_error_0_unscaled: 278.0000 (275.1447) loss_ce_1_unscaled: 1.2109 (1.2365) loss_bbox_1_unscaled: 0.0394 (0.0471) loss_giou_1_unscaled: 0.0806 (0.0890) cardinality_error_1_unscaled: 263.0000 (251.7303) loss_ce_enc_unscaled: 1.4297

(1.4266) loss_bbox_enc_unscaled: 0.0467 (0.0536) loss_giou_enc_unscaled: 0.0795 (0.0994) cardinality_error_enc_unscaled: 287.2500 (274.0395) time: 0.2975 data: 0.0176 max mem: 9230
Test: Total time: 0:00:11 (0.3018 s / it)
Averaged stats: class_error: 0.00 loss: 6.7047 (6.9672) loss_ce: 1.1250 (1.1244) loss_bbox: 0.2227 (0.2769) loss_giou: 0.1665 (0.1992) loss_ce_0: 1.4219 (1.4383) loss_bbox_0: 0.1726 (0.2168) loss_giou_0: 0.1271 (0.1682) loss_ce_1: 1.2109 (1.2365) loss_bbox_1: 0.1971 (0.2353) loss_giou_1: 0.1612 (0.1780) loss_ce_enc: 1.4297 (1.4266) loss_bbox_enc: 0.2334 (0.2681) loss_giou_enc: 0.1590 (0.1988) loss_ce_unscaled: 1.1250 (1.1244) class_error_unscaled: 20.0000 (31.6093) loss_bbox_unscaled: 0.0445 (0.0554) loss_giou_unscaled: 0.0832 (0.0996) cardinality_error_unscaled: 292.2500 (291.0461) loss_ce_0_unscaled: 1.4219 (1.4383) loss_bbox_0_unscaled: 0.0345 (0.0434) loss_giou_0_unscaled: 0.0636 (0.0841) cardinality_error_0_unscaled: 278.0000 (275.1447) loss_ce_1_unscaled: 1.2109 (1.2365) loss_bbox_1_unscaled: 0.0394 (0.0471) loss_giou_1_unscaled: 0.0806 (0.0890) cardinality_error_1_unscaled: 263.0000 (251.7303) loss_ce_enc_unscaled: 1.4297 (1.4266) loss_bbox_enc_unscaled: 0.0467 (0.0536) loss_giou_enc_unscaled: 0.0795 (0.0994) cardinality_error_enc_unscaled: 287.2500 (274.0395)
Accumulating evaluation results…
DONE (t=0.46s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.334
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.424
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.375
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = −1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.362
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.337
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.598
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.831
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.883
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = −1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.485
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.892
Test: [0/38] eta: 0:00:27 class_error: 50.00 loss: 6.8354 (6.8354) loss_ce: 1.1953 (1.1953) loss_bbox: 0.2406 (0.2406) loss_giou: 0.1349 (0.1349) loss_ce_0: 1.5312 (1.5312) loss_bbox_0: 0.1728 (0.1728) loss_giou_0: 0.1049 (0.1049) loss_ce_1: 1.2656 (1.2656) loss_bbox_1: 0.2047 (0.2047) loss_giou_1: 0.1138 (0.1138) loss_ce_enc: 1.4922 (1.4922) loss_bbox_enc: 0.2442 (0.2442) loss_giou_enc: 0.1351 (0.1351) loss_ce_unscaled: 1.1953 (1.1953) class_error_unscaled: 50.0000 (50.0000) loss_bbox_unscaled: 0.0481 (0.0481) loss_giou_unscaled: 0.0675 (0.0675) cardinality_error_unscaled: 286.7500 (286.7500) loss_ce_0_unscaled: 1.5312 (1.5312) loss_bbox_0_unscaled: 0.0346 (0.0346) loss_giou_0_unscaled: 0.0524 (0.0524) cardinality_error_0_unscaled: 283.2500 (283.2500) loss_ce_1_unscaled: 1.2656 (1.2656) loss_bbox_1_unscaled: 0.0409 (0.0409) loss_giou_1_unscaled: 0.0569 (0.0569) cardinality_error_1_unscaled: 240.2500 (240.2500) loss_ce_enc_unscaled: 1.4922 (1.4922) loss_bbox_enc_unscaled: 0.0488 (0.0488) loss_giou_enc_unscaled:

0.0676 (0.0676) cardinality_error_enc_unscaled: 288.7500 (288.7500) time: 0.7209 data: 0.3702 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 85.71 loss: 6.9354 (6.9969) loss_ce: 1.0938 (1.1289) loss_bbox: 0.2736 (0.2924) loss_giou: 0.1548 (0.1969) loss_ce_0: 1.4609 (1.4489) loss_bbox_0: 0.1766 (0.2067) loss_giou_0: 0.1459 (0.1552) loss_ce_1: 1.2344 (1.2379) loss_bbox_1: 0.2359 (0.2543) loss_giou_1: 0.1408 (0.1762) loss_ce_enc: 1.4453 (1.4290) loss_bbox_enc: 0.2094 (0.2707) loss_giou_enc: 0.1516 (0.1998) loss_ce_unscaled: 1.0938 (1.1289) class_error_unscaled: 50.0000 (45.2417) loss_bbox_unscaled: 0.0547 (0.0585) loss_giou_unscaled: 0.0774 (0.0985) cardinality_error_unscaled: 293.2500 (291.5227) loss_ce_0_unscaled: 1.4609 (1.4489) loss_bbox_0_unscaled: 0.0353 (0.0413) loss_giou_0_unscaled: 0.0730 (0.0776) cardinality_error_0_unscaled: 275.2500 (269.7727) loss_ce_1_unscaled: 1.2344 (1.2379) loss_bbox_1_unscaled: 0.0472 (0.0509) loss_giou_1_unscaled: 0.0704 (0.0881) cardinality_error_1_unscaled: 240.2500 (243.3182) loss_ce_enc_unscaled: 1.4453 (1.4290) loss_bbox_enc_unscaled: 0.0419 (0.0541) loss_giou_enc_unscaled: 0.0758 (0.0999) cardinality_error_enc_unscaled: 279.0000 (272.7727) time: 0.3191 data: 0.0482 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 54.55 loss: 6.9842 (6.9912) loss_ce: 1.0938 (1.1523) loss_bbox: 0.2791 (0.2910) loss_giou: 0.1856 (0.1895) loss_ce_0: 1.4453 (1.4576) loss_bbox_0: 0.1744 (0.1977) loss_giou_0: 0.1174 (0.1432) loss_ce_1: 1.2344 (1.2548) loss_bbox_1: 0.2359 (0.2470) loss_giou_1: 0.1821 (0.1704) loss_ce_enc: 1.4375 (1.4375) loss_bbox_enc: 0.2115 (0.2609) loss_giou_enc: 0.1658 (0.1892) loss_ce_unscaled: 1.0938 (1.1523) class_error_unscaled: 44.4444 (43.8880) loss_bbox_unscaled: 0.0558 (0.0582) loss_giou_unscaled: 0.0928 (0.0947) cardinality_error_unscaled: 293.2500 (291.2262) loss_ce_0_unscaled: 1.4453 (1.4576) loss_bbox_0_unscaled: 0.0349 (0.0395) loss_giou_0_unscaled: 0.0587 (0.0716) cardinality_error_0_unscaled: 274.0000 (270.1071) loss_ce_1_unscaled: 1.2344 (1.2548) loss_bbox_1_unscaled: 0.0472 (0.0494) loss_giou_1_unscaled: 0.0910 (0.0852) cardinality_error_1_unscaled: 240.7500 (245.9762) loss_ce_enc_unscaled: 1.4375 (1.4375) loss_bbox_enc_unscaled: 0.0423 (0.0522) loss_giou_enc_unscaled: 0.0829 (0.0946) cardinality_error_enc_unscaled: 271.0000 (267.7500) time: 0.2817 data: 0.0168 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 6.6833 (6.8935) loss_ce: 1.1172 (1.1193) loss_bbox: 0.2711 (0.2784) loss_giou: 0.1796 (0.1911) loss_ce_0: 1.4297 (1.4415) loss_bbox_0: 0.1561 (0.1985) loss_giou_0: 0.1174 (0.1532) loss_ce_1: 1.1953 (1.2240) loss_bbox_1: 0.2063 (0.2369) loss_giou_1: 0.1586 (0.1720) loss_ce_enc: 1.4375 (1.4342) loss_bbox_enc: 0.2340 (0.2542) loss_giou_enc: 0.1658 (0.1900) loss_ce_unscaled: 1.1172 (1.1193) class_error_unscaled: 25.0000 (36.8607) loss_bbox_unscaled: 0.0542 (0.0557) loss_giou_unscaled: 0.0898 (0.0955) cardinality_error_unscaled: 291.0000 (290.3710) loss_ce_0_unscaled: 1.4297 (1.4415) loss_bbox_0_unscaled: 0.0312 (0.0397) loss_giou_0_unscaled: 0.0587 (0.0766) cardinality_error_0_unscaled: 275.0000 (272.6613) loss_ce_1_unscaled: 1.1953 (1.2240) loss_bbox_1_unscaled: 0.0413 (0.0474) loss_giou_1_unscaled: 0.0793 (0.0860) cardinality_error_1_unscaled: 260.7500 (248.6210) loss_ce_enc_unscaled: 1.4375 (1.4342) loss_bbox_enc_unscaled: 0.0468 (0.0508) loss_giou_enc_unscaled:

0.0829 (0.0950) cardinality_error_enc_unscaled: 258.0000 (267.5403) time:
0.3143 data: 0.0182 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 20.00 loss: 6.6814 (6.9147)
loss_ce: 1.1172 (1.1199) loss_bbox: 0.2274 (0.2794) loss_giou: 0.1775 (0.1923)
loss_ce_0: 1.4219 (1.4389) loss_bbox_0: 0.1670 (0.2020) loss_giou_0: 0.1474
(0.1571) loss_ce_1: 1.1875 (1.2243) loss_bbox_1: 0.2063 (0.2405) loss_giou_1:
0.1584 (0.1766) loss_ce_enc: 1.4297 (1.4272) loss_bbox_enc: 0.2340 (0.2603)
loss_giou_enc: 0.1589 (0.1963) loss_ce_unscaled: 1.1172 (1.1199)
class_error_unscaled: 20.0000 (34.3406) loss_bbox_unscaled: 0.0455 (0.0559)
loss_giou_unscaled: 0.0888 (0.0962) cardinality_error_unscaled: 291.0000
(290.5263) loss_ce_0_unscaled: 1.4219 (1.4389) loss_bbox_0_unscaled: 0.0334
(0.0404) loss_giou_0_unscaled: 0.0737 (0.0786) cardinality_error_0_unscaled:
278.5000 (273.7632) loss_ce_1_unscaled: 1.1875 (1.2243) loss_bbox_1_unscaled:
0.0413 (0.0481) loss_giou_1_unscaled: 0.0792 (0.0883)
cardinality_error_1_unscaled: 260.7500 (250.5592) loss_ce_enc_unscaled: 1.4297
(1.4272) loss_bbox_enc_unscaled: 0.0468 (0.0521) loss_giou_enc_unscaled:
0.0795 (0.0981) cardinality_error_enc_unscaled: 285.0000 (271.3618) time:
0.3165 data: 0.0184 max mem: 9230
Test: Total time: 0:00:11 (0.3139 s / it)
Averaged stats: class_error: 20.00 loss: 6.6814 (6.9147) loss_ce: 1.1172
(1.1199) loss_bbox: 0.2274 (0.2794) loss_giou: 0.1775 (0.1923) loss_ce_0:
1.4219 (1.4389) loss_bbox_0: 0.1670 (0.2020) loss_giou_0: 0.1474 (0.1571)
loss_ce_1: 1.1875 (1.2243) loss_bbox_1: 0.2063 (0.2405) loss_giou_1: 0.1584
(0.1766) loss_ce_enc: 1.4297 (1.4272) loss_bbox_enc: 0.2340 (0.2603)
loss_giou_enc: 0.1589 (0.1963) loss_ce_unscaled: 1.1172 (1.1199)
class_error_unscaled: 20.0000 (34.3406) loss_bbox_unscaled: 0.0455 (0.0559)
loss_giou_unscaled: 0.0888 (0.0962) cardinality_error_unscaled: 291.0000
(290.5263) loss_ce_0_unscaled: 1.4219 (1.4389) loss_bbox_0_unscaled: 0.0334
(0.0404) loss_giou_0_unscaled: 0.0737 (0.0786) cardinality_error_0_unscaled:
278.5000 (273.7632) loss_ce_1_unscaled: 1.1875 (1.2243) loss_bbox_1_unscaled:
0.0413 (0.0481) loss_giou_1_unscaled: 0.0792 (0.0883)
cardinality_error_1_unscaled: 260.7500 (250.5592) loss_ce_enc_unscaled: 1.4297
(1.4272) loss_bbox_enc_unscaled: 0.0468 (0.0521) loss_giou_enc_unscaled:
0.0795 (0.0981) cardinality_error_enc_unscaled: 285.0000 (271.3618)
Accumulating evaluation results…
DONE (t=0.29s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.350
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.448
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.389
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.490
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.350
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.602
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.830
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.885
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.640

Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.890
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [1] [0/87] eta: 0:12:25 lr: 0.000100 class_error: 37.18 loss:
6.8945 (6.8945) loss_ce: 1.1540 (1.1540) loss_bbox: 0.2869 (0.2869)
loss_giou: 0.1557 (0.1557) loss_ce_0: 1.4257 (1.4257) loss_bbox_0: 0.2058
(0.2058) loss_giou_0: 0.1205 (0.1205) loss_ce_1: 1.2460 (1.2460) loss_bbox_1:
0.2661 (0.2661) loss_giou_1: 0.1509 (0.1509) loss_ce_enc: 1.4273 (1.4273)
loss_bbox_enc: 0.2864 (0.2864) loss_giou_enc: 0.1691 (0.1691)
loss_ce_unscaled: 1.1540 (1.1540) class_error_unscaled: 37.1795 (37.1795)
loss_bbox_unscaled: 0.0574 (0.0574) loss_giou_unscaled: 0.0779 (0.0779)
cardinality_error_unscaled: 3597.7500 (3597.7500) loss_ce_0_unscaled: 1.4257
(1.4257) loss_bbox_0_unscaled: 0.0412 (0.0412) loss_giou_0_unscaled: 0.0603
(0.0603) cardinality_error_0_unscaled: 3146.2500 (3146.2500)
loss_ce_1_unscaled: 1.2460 (1.2460) loss_bbox_1_unscaled: 0.0532 (0.0532)
loss_giou_1_unscaled: 0.0754 (0.0754) cardinality_error_1_unscaled: 2860.5000
(2860.5000) loss_ce_enc_unscaled: 1.4273 (1.4273) loss_bbox_enc_unscaled:
0.0573 (0.0573) loss_giou_enc_unscaled: 0.0846 (0.0846)
cardinality_error_enc_unscaled: 3658.5000 (3658.5000) time: 8.5643 data:
1.1270 max mem: 9230
Epoch: [1] [10/87] eta: 0:09:11 lr: 0.000100 class_error: 58.24 loss:
7.1726 (7.1623) loss_ce: 1.0681 (1.0581) loss_bbox: 0.3265 (0.3532)
loss_giou: 0.2136 (0.2201) loss_ce_0: 1.4043 (1.3839) loss_bbox_0: 0.2591
(0.2705) loss_giou_0: 0.1430 (0.1825) loss_ce_1: 1.1411 (1.1609) loss_bbox_1:
0.3065 (0.3286) loss_giou_1: 0.1805 (0.2121) loss_ce_enc: 1.4245 (1.4028)
loss_bbox_enc: 0.3417 (0.3567) loss_giou_enc: 0.2040 (0.2328)
loss_ce_unscaled: 1.0681 (1.0581) class_error_unscaled: 18.2692 (25.4000)
loss_bbox_unscaled: 0.0653 (0.0706) loss_giou_unscaled: 0.1068 (0.1101)
cardinality_error_unscaled: 3597.7500 (3595.5455) loss_ce_0_unscaled: 1.4043
(1.3839) loss_bbox_0_unscaled: 0.0518 (0.0541) loss_giou_0_unscaled: 0.0715
(0.0913) cardinality_error_0_unscaled: 3259.7500 (3176.6818)
loss_ce_1_unscaled: 1.1411 (1.1609) loss_bbox_1_unscaled: 0.0613 (0.0657)
loss_giou_1_unscaled: 0.0902 (0.1060) cardinality_error_1_unscaled: 3079.2500
(3121.7727) loss_ce_enc_unscaled: 1.4245 (1.4028) loss_bbox_enc_unscaled:
0.0683 (0.0713) loss_giou_enc_unscaled: 0.1020 (0.1164)
cardinality_error_enc_unscaled: 3696.7500 (3704.7955) time: 7.1663 data:
0.1475 max mem: 9230
Epoch: [1] [20/87] eta: 0:07:55 lr: 0.000100 class_error: 70.77 loss:
7.1471 (7.0917) loss_ce: 1.0681 (1.0753) loss_bbox: 0.3210 (0.3414)
loss_giou: 0.1701 (0.1986) loss_ce_0: 1.4316 (1.4075) loss_bbox_0: 0.2212
(0.2536) loss_giou_0: 0.1384 (0.1637) loss_ce_1: 1.1411 (1.1600) loss_bbox_1:
0.3186 (0.3273) loss_giou_1: 0.1728 (0.1967) loss_ce_enc: 1.4529 (1.4272)
loss_bbox_enc: 0.3154 (0.3316) loss_giou_enc: 0.1703 (0.2088)
loss_ce_unscaled: 1.0681 (1.0753) class_error_unscaled: 16.9231 (27.4213)
loss_bbox_unscaled: 0.0642 (0.0683) loss_giou_unscaled: 0.0850 (0.0993)
cardinality_error_unscaled: 3346.2500 (3351.4048) loss_ce_0_unscaled: 1.4316
(1.4075) loss_bbox_0_unscaled: 0.0442 (0.0507) loss_giou_0_unscaled: 0.0692

(0.0818) cardinality_error_0_unscaled: 2930.7500 (3018.0119)
loss_ce_1_unscaled: 1.1411 (1.1600) loss_bbox_1_unscaled: 0.0637 (0.0655)
loss_giou_1_unscaled: 0.0864 (0.0984) cardinality_error_1_unscaled: 2984.7500
(2947.3810) loss_ce_enc_unscaled: 1.4529 (1.4272) loss_bbox_enc_unscaled:
0.0631 (0.0663) loss_giou_enc_unscaled: 0.0851 (0.1044)
cardinality_error_enc_unscaled: 3704.5000 (3712.5000) time: 7.0217 data:
0.0495 max mem: 9230
Epoch: [1] [30/87] eta: 0:06:44 lr: 0.000100 class_error: 1.71 loss: 6.8644
(7.0419) loss_ce: 1.0480 (1.0574) loss_bbox: 0.2954 (0.3457) loss_giou:
0.1590 (0.2024) loss_ce_0: 1.4486 (1.4073) loss_bbox_0: 0.1983 (0.2462)
loss_giou_0: 0.1059 (0.1614) loss_ce_1: 1.1365 (1.1499) loss_bbox_1: 0.3082
(0.3235) loss_giou_1: 0.1521 (0.1965) loss_ce_enc: 1.4702 (1.4370)
loss_bbox_enc: 0.2697 (0.3140) loss_giou_enc: 0.1611 (0.2006)
loss_ce_unscaled: 1.0480 (1.0574) class_error_unscaled: 24.6154 (25.9893)
loss_bbox_unscaled: 0.0591 (0.0691) loss_giou_unscaled: 0.0795 (0.1012)
cardinality_error_unscaled: 2763.2500 (3120.1694) loss_ce_0_unscaled: 1.4486
(1.4073) loss_bbox_0_unscaled: 0.0397 (0.0492) loss_giou_0_unscaled: 0.0530
(0.0807) cardinality_error_0_unscaled: 2857.0000 (3023.2339)
loss_ce_1_unscaled: 1.1365 (1.1499) loss_bbox_1_unscaled: 0.0616 (0.0647)
loss_giou_1_unscaled: 0.0760 (0.0982) cardinality_error_1_unscaled: 2778.5000
(2876.0000) loss_ce_enc_unscaled: 1.4702 (1.4370) loss_bbox_enc_unscaled:
0.0539 (0.0628) loss_giou_enc_unscaled: 0.0806 (0.1003)
cardinality_error_enc_unscaled: 3729.0000 (3725.0081) time: 7.0556 data:
0.0496 max mem: 9230
Epoch: [1] [40/87] eta: 0:05:33 lr: 0.000100 class_error: 28.21 loss:
6.8650 (7.1104) loss_ce: 1.0149 (1.0447) loss_bbox: 0.3330 (0.3621)
loss_giou: 0.2262 (0.2140) loss_ce_0: 1.4075 (1.4061) loss_bbox_0: 0.2286
(0.2560) loss_giou_0: 0.1460 (0.1692) loss_ce_1: 1.0984 (1.1370) loss_bbox_1:
0.3612 (0.3443) loss_giou_1: 0.2146 (0.2097) loss_ce_enc: 1.4399 (1.4333)
loss_bbox_enc: 0.2947 (0.3235) loss_giou_enc: 0.1784 (0.2105)
loss_ce_unscaled: 1.0149 (1.0447) class_error_unscaled: 24.6154 (26.1099)
loss_bbox_unscaled: 0.0666 (0.0724) loss_giou_unscaled: 0.1131 (0.1070)
cardinality_error_unscaled: 2602.7500 (3011.5366) loss_ce_0_unscaled: 1.4075
(1.4061) loss_bbox_0_unscaled: 0.0457 (0.0512) loss_giou_0_unscaled: 0.0730
(0.0846) cardinality_error_0_unscaled: 3002.2500 (3046.6280)
loss_ce_1_unscaled: 1.0984 (1.1370) loss_bbox_1_unscaled: 0.0722 (0.0689)
loss_giou_1_unscaled: 0.1073 (0.1048) cardinality_error_1_unscaled: 2803.0000
(2876.7439) loss_ce_enc_unscaled: 1.4399 (1.4333) loss_bbox_enc_unscaled:
0.0589 (0.0647) loss_giou_enc_unscaled: 0.0892 (0.1053)
cardinality_error_enc_unscaled: 3778.5000 (3737.8537) time: 7.0957 data:
0.0505 max mem: 9230
Epoch: [1] [50/87] eta: 0:04:22 lr: 0.000100 class_error: 19.66 loss:
6.9547 (7.0440) loss_ce: 1.0206 (1.0320) loss_bbox: 0.3787 (0.3566)
loss_giou: 0.2031 (0.2047) loss_ce_0: 1.4075 (1.4055) loss_bbox_0: 0.2443
(0.2543) loss_giou_0: 0.1446 (0.1627) loss_ce_1: 1.0955 (1.1215) loss_bbox_1:
0.3817 (0.3431) loss_giou_1: 0.1773 (0.2021) loss_ce_enc: 1.4612 (1.4444)
loss_bbox_enc: 0.2937 (0.3155) loss_giou_enc: 0.1732 (0.2016)
loss_ce_unscaled: 1.0206 (1.0320) class_error_unscaled: 21.5385 (26.1278)

loss_bbox_unscaled: 0.0757 (0.0713) loss_giou_unscaled: 0.1016 (0.1023)
cardinality_error_unscaled: 2622.0000 (2950.5980) loss_ce_0_unscaled: 1.4075
(1.4055) loss_bbox_0_unscaled: 0.0489 (0.0509) loss_giou_0_unscaled: 0.0723
(0.0813) cardinality_error_0_unscaled: 3028.7500 (3013.6618)
loss_ce_1_unscaled: 1.0955 (1.1215) loss_bbox_1_unscaled: 0.0763 (0.0686)
loss_giou_1_unscaled: 0.0886 (0.1011) cardinality_error_1_unscaled: 2706.2500
(2835.4853) loss_ce_enc_unscaled: 1.4612 (1.4444) loss_bbox_enc_unscaled:
0.0587 (0.0631) loss_giou_enc_unscaled: 0.0866 (0.1008)
cardinality_error_enc_unscaled: 3782.0000 (3744.7500) time: 7.0951 data:
0.0496 max mem: 9230
Epoch: [1] [60/87] eta: 0:03:11 lr: 0.000100 class_error: 16.48 loss:
6.9323 (7.0236) loss_ce: 0.8830 (0.9975) loss_bbox: 0.3704 (0.3689)
loss_giou: 0.1751 (0.2131) loss_ce_0: 1.3470 (1.3864) loss_bbox_0: 0.2584
(0.2626) loss_giou_0: 0.1428 (0.1703) loss_ce_1: 0.9973 (1.0935) loss_bbox_1:
0.3817 (0.3522) loss_giou_1: 0.1773 (0.2098) loss_ce_enc: 1.4594 (1.4413)
loss_bbox_enc: 0.2927 (0.3213) loss_giou_enc: 0.1536 (0.2068)
loss_ce_unscaled: 0.8830 (0.9975) class_error_unscaled: 16.4835 (23.4708)
loss_bbox_unscaled: 0.0741 (0.0738) loss_giou_unscaled: 0.0875 (0.1065)
cardinality_error_unscaled: 2648.5000 (2896.5000) loss_ce_0_unscaled: 1.3470
(1.3864) loss_bbox_0_unscaled: 0.0517 (0.0525) loss_giou_0_unscaled: 0.0714
(0.0851) cardinality_error_0_unscaled: 2601.5000 (2902.1189)
loss_ce_1_unscaled: 0.9973 (1.0935) loss_bbox_1_unscaled: 0.0763 (0.0704)
loss_giou_1_unscaled: 0.0886 (0.1049) cardinality_error_1_unscaled: 2518.2500
(2750.0287) loss_ce_enc_unscaled: 1.4594 (1.4413) loss_bbox_enc_unscaled:
0.0585 (0.0643) loss_giou_enc_unscaled: 0.0768 (0.1034)
cardinality_error_enc_unscaled: 3784.0000 (3745.9795) time: 7.0448 data:
0.0485 max mem: 9230
Epoch: [1] [70/87] eta: 0:01:59 lr: 0.000100 class_error: 19.78 loss:
6.8180 (6.9724) loss_ce: 0.8055 (0.9747) loss_bbox: 0.3869 (0.3737)
loss_giou: 0.2175 (0.2118) loss_ce_0: 1.3051 (1.3772) loss_bbox_0: 0.2859
(0.2640) loss_giou_0: 0.1557 (0.1674) loss_ce_1: 0.9768 (1.0775) loss_bbox_1:
0.3910 (0.3559) loss_giou_1: 0.2050 (0.2077) loss_ce_enc: 1.4513 (1.4477)
loss_bbox_enc: 0.2858 (0.3150) loss_giou_enc: 0.1653 (0.1999)
loss_ce_unscaled: 0.8055 (0.9747) class_error_unscaled: 5.1282 (21.7871)
loss_bbox_unscaled: 0.0774 (0.0747) loss_giou_unscaled: 0.1088 (0.1059)
cardinality_error_unscaled: 2698.0000 (2883.2746) loss_ce_0_unscaled: 1.3051
(1.3772) loss_bbox_0_unscaled: 0.0572 (0.0528) loss_giou_0_unscaled: 0.0779
(0.0837) cardinality_error_0_unscaled: 2163.2500 (2786.5176)
loss_ce_1_unscaled: 0.9768 (1.0775) loss_bbox_1_unscaled: 0.0782 (0.0712)
loss_giou_1_unscaled: 0.1025 (0.1038) cardinality_error_1_unscaled: 2108.0000
(2672.9824) loss_ce_enc_unscaled: 1.4513 (1.4477) loss_bbox_enc_unscaled:
0.0572 (0.0630) loss_giou_enc_unscaled: 0.0827 (0.1000)
cardinality_error_enc_unscaled: 3747.0000 (3742.4683) time: 6.9343 data:
0.0487 max mem: 9230
Epoch: [1] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 29.23 loss:
6.6953 (6.9613) loss_ce: 0.8223 (0.9595) loss_bbox: 0.3869 (0.3767)
loss_giou: 0.2055 (0.2177) loss_ce_0: 1.2950 (1.3664) loss_bbox_0: 0.2752
(0.2684) loss_giou_0: 0.1347 (0.1738) loss_ce_1: 0.9768 (1.0620) loss_bbox_1:

0.3675 (0.3584) loss_giou_1: 0.2029 (0.2141) loss_ce_enc: 1.4812 (1.4438)
loss_bbox_enc: 0.2729 (0.3158) loss_giou_enc: 0.1502 (0.2047)
loss_ce_unscaled: 0.8223 (0.9595) class_error_unscaled: 17.5824 (22.4146)
loss_bbox_unscaled: 0.0774 (0.0753) loss_giou_unscaled: 0.1028 (0.1089)
cardinality_error_unscaled: 3019.2500 (2905.8488) loss_ce_0_unscaled: 1.2950
(1.3664) loss_bbox_0_unscaled: 0.0550 (0.0537) loss_giou_0_unscaled: 0.0674
(0.0869) cardinality_error_0_unscaled: 2208.2500 (2750.7068)
loss_ce_1_unscaled: 0.9768 (1.0620) loss_bbox_1_unscaled: 0.0735 (0.0717)
loss_giou_1_unscaled: 0.1015 (0.1070) cardinality_error_1_unscaled: 2374.2500
(2672.2469) loss_ce_enc_unscaled: 1.4812 (1.4438) loss_bbox_enc_unscaled:
0.0546 (0.0632) loss_giou_enc_unscaled: 0.0751 (0.1023)
cardinality_error_enc_unscaled: 3711.0000 (3737.1574) time: 6.9802 data:
0.0498 max mem: 9230
Epoch: [1] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 25.00 loss:
6.7009 (6.9367) loss_ce: 0.8758 (0.9561) loss_bbox: 0.3931 (0.3744)
loss_giou: 0.1685 (0.2148) loss_ce_0: 1.3300 (1.3616) loss_bbox_0: 0.2702
(0.2700) loss_giou_0: 0.1211 (0.1726) loss_ce_1: 0.9758 (1.0564) loss_bbox_1:
0.3685 (0.3571) loss_giou_1: 0.1672 (0.2114) loss_ce_enc: 1.4889 (1.4470)
loss_bbox_enc: 0.2729 (0.3134) loss_giou_enc: 0.1359 (0.2019)
loss_ce_unscaled: 0.8758 (0.9561) class_error_unscaled: 19.7802 (22.5720)
loss_bbox_unscaled: 0.0786 (0.0749) loss_giou_unscaled: 0.0842 (0.1074)
cardinality_error_unscaled: 2925.0000 (2871.6006) loss_ce_0_unscaled: 1.3300
(1.3616) loss_bbox_0_unscaled: 0.0540 (0.0540) loss_giou_0_unscaled: 0.0606
(0.0863) cardinality_error_0_unscaled: 2166.2500 (2698.1466)
loss_ce_1_unscaled: 0.9758 (1.0564) loss_bbox_1_unscaled: 0.0737 (0.0714)
loss_giou_1_unscaled: 0.0836 (0.1057) cardinality_error_1_unscaled: 2550.5000
(2644.9368) loss_ce_enc_unscaled: 1.4889 (1.4470) loss_bbox_enc_unscaled:
0.0546 (0.0627) loss_giou_enc_unscaled: 0.0679 (0.1010)
cardinality_error_enc_unscaled: 3716.7500 (3738.7213) time: 6.9364 data:
0.0506 max mem: 9230
Epoch: [1] Total time: 0:10:13 (7.0533 s / it)
Averaged stats: lr: 0.000100 class_error: 25.00 loss: 6.7009 (6.9367)
loss_ce: 0.8758 (0.9561) loss_bbox: 0.3931 (0.3744) loss_giou: 0.1685 (0.2148)
loss_ce_0: 1.3300 (1.3616) loss_bbox_0: 0.2702 (0.2700) loss_giou_0: 0.1211
(0.1726) loss_ce_1: 0.9758 (1.0564) loss_bbox_1: 0.3685 (0.3571) loss_giou_1:
0.1672 (0.2114) loss_ce_enc: 1.4889 (1.4470) loss_bbox_enc: 0.2729 (0.3134)
loss_giou_enc: 0.1359 (0.2019) loss_ce_unscaled: 0.8758 (0.9561)
class_error_unscaled: 19.7802 (22.5720) loss_bbox_unscaled: 0.0786 (0.0749)
loss_giou_unscaled: 0.0842 (0.1074) cardinality_error_unscaled: 2925.0000
(2871.6006) loss_ce_0_unscaled: 1.3300 (1.3616) loss_bbox_0_unscaled: 0.0540
(0.0540) loss_giou_0_unscaled: 0.0606 (0.0863) cardinality_error_0_unscaled:
2166.2500 (2698.1466) loss_ce_1_unscaled: 0.9758 (1.0564)
loss_bbox_1_unscaled: 0.0737 (0.0714) loss_giou_1_unscaled: 0.0836 (0.1057)
cardinality_error_1_unscaled: 2550.5000 (2644.9368) loss_ce_enc_unscaled:
1.4889 (1.4470) loss_bbox_enc_unscaled: 0.0546 (0.0627)
loss_giou_enc_unscaled: 0.0679 (0.1010) cardinality_error_enc_unscaled:
3716.7500 (3738.7213)
Test: [0/38] eta: 0:00:24 class_error: 0.00 loss: 6.3956 (6.3956) loss_ce:

0.8125 (0.8125) loss_bbox: 0.3099 (0.3099) loss_giou: 0.1696 (0.1696)
loss_ce_0: 1.2812 (1.2812) loss_bbox_0: 0.2865 (0.2865) loss_giou_0: 0.1489
(0.1489) loss_ce_1: 1.0000 (1.0000) loss_bbox_1: 0.3073 (0.3073) loss_giou_1:
0.1723 (0.1723) loss_ce_enc: 1.4844 (1.4844) loss_bbox_enc: 0.2683 (0.2683)
loss_giou_enc: 0.1547 (0.1547) loss_ce_unscaled: 0.8125 (0.8125)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0620 (0.0620)
loss_giou_unscaled: 0.0848 (0.0848) cardinality_error_unscaled: 167.5000
(167.5000) loss_ce_0_unscaled: 1.2812 (1.2812) loss_bbox_0_unscaled: 0.0573
(0.0573) loss_giou_0_unscaled: 0.0744 (0.0744) cardinality_error_0_unscaled:
112.5000 (112.5000) loss_ce_1_unscaled: 1.0000 (1.0000) loss_bbox_1_unscaled:
0.0615 (0.0615) loss_giou_1_unscaled: 0.0861 (0.0861)
cardinality_error_1_unscaled: 162.2500 (162.2500) loss_ce_enc_unscaled: 1.4844
(1.4844) loss_bbox_enc_unscaled: 0.0537 (0.0537) loss_giou_enc_unscaled:
0.0774 (0.0774) cardinality_error_enc_unscaled: 287.0000 (287.0000) time:
0.6539 data: 0.3077 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 42.86 loss: 6.3084 (6.3539)
loss_ce: 0.8125 (0.8185) loss_bbox: 0.3003 (0.3001) loss_giou: 0.1696 (0.2110)
loss_ce_0: 1.2812 (1.2812) loss_bbox_0: 0.2001 (0.2403) loss_giou_0: 0.1489
(0.1766) loss_ce_1: 0.9648 (0.9371) loss_bbox_1: 0.2650 (0.2849) loss_giou_1:
0.1723 (0.2021) loss_ce_enc: 1.4297 (1.4297) loss_bbox_enc: 0.2588 (0.2691)
loss_giou_enc: 0.1554 (0.2032) loss_ce_unscaled: 0.8125 (0.8185)
class_error_unscaled: 0.0000 (10.9416) loss_bbox_unscaled: 0.0601 (0.0600)
loss_giou_unscaled: 0.0848 (0.1055) cardinality_error_unscaled: 189.5000
(178.2955) loss_ce_0_unscaled: 1.2812 (1.2812) loss_bbox_0_unscaled: 0.0400
(0.0481) loss_giou_0_unscaled: 0.0744 (0.0883) cardinality_error_0_unscaled:
166.7500 (157.8864) loss_ce_1_unscaled: 0.9648 (0.9371) loss_bbox_1_unscaled:
0.0530 (0.0570) loss_giou_1_unscaled: 0.0861 (0.1010)
cardinality_error_1_unscaled: 181.2500 (181.6364) loss_ce_enc_unscaled: 1.4297
(1.4297) loss_bbox_enc_unscaled: 0.0518 (0.0538) loss_giou_enc_unscaled:
0.0777 (0.1016) cardinality_error_enc_unscaled: 287.0000 (283.0227) time:
0.3066 data: 0.0437 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 18.18 loss: 6.3000 (6.4461)
loss_ce: 0.8086 (0.8209) loss_bbox: 0.3287 (0.3235) loss_giou: 0.1854 (0.2124)
loss_ce_0: 1.2891 (1.2891) loss_bbox_0: 0.2164 (0.2642) loss_giou_0: 0.1576
(0.1752) loss_ce_1: 0.9648 (0.9394) loss_bbox_1: 0.3001 (0.3095) loss_giou_1:
0.1978 (0.2032) loss_ce_enc: 1.4297 (1.4382) loss_bbox_enc: 0.2424 (0.2752)
loss_giou_enc: 0.1554 (0.1953) loss_ce_unscaled: 0.8086 (0.8209)
class_error_unscaled: 0.0000 (9.9304) loss_bbox_unscaled: 0.0657 (0.0647)
loss_giou_unscaled: 0.0927 (0.1062) cardinality_error_unscaled: 189.5000
(181.8333) loss_ce_0_unscaled: 1.2891 (1.2891) loss_bbox_0_unscaled: 0.0433
(0.0528) loss_giou_0_unscaled: 0.0788 (0.0876) cardinality_error_0_unscaled:
172.7500 (165.6190) loss_ce_1_unscaled: 0.9648 (0.9394) loss_bbox_1_unscaled:
0.0600 (0.0619) loss_giou_1_unscaled: 0.0989 (0.1016)
cardinality_error_1_unscaled: 190.7500 (182.7262) loss_ce_enc_unscaled: 1.4297
(1.4382) loss_bbox_enc_unscaled: 0.0485 (0.0550) loss_giou_enc_unscaled:
0.0777 (0.0976) cardinality_error_enc_unscaled: 290.7500 (285.3810) time:
0.2730 data: 0.0178 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 11.11 loss: 5.9412 (6.2311)

19

loss_ce: 0.7148 (0.7812) loss_bbox: 0.2506 (0.3013) loss_giou: 0.1676 (0.2069)
loss_ce_0: 1.2812 (1.2749) loss_bbox_0: 0.2108 (0.2446) loss_giou_0: 0.1576
(0.1738) loss_ce_1: 0.8594 (0.8955) loss_bbox_1: 0.2598 (0.2810) loss_giou_1:
0.1932 (0.1980) loss_ce_enc: 1.4297 (1.4360) loss_bbox_enc: 0.2254 (0.2512)
loss_giou_enc: 0.1493 (0.1867) loss_ce_unscaled: 0.7148 (0.7812)
class_error_unscaled: 0.0000 (9.7751) loss_bbox_unscaled: 0.0501 (0.0603)
loss_giou_unscaled: 0.0838 (0.1034) cardinality_error_unscaled: 193.7500
(189.5081) loss_ce_0_unscaled: 1.2812 (1.2749) loss_bbox_0_unscaled: 0.0422
(0.0489) loss_giou_0_unscaled: 0.0788 (0.0869) cardinality_error_0_unscaled:
170.0000 (166.7097) loss_ce_1_unscaled: 0.8594 (0.8955) loss_bbox_1_unscaled:
0.0520 (0.0562) loss_giou_1_unscaled: 0.0966 (0.0990)
cardinality_error_1_unscaled: 188.2500 (184.1935) loss_ce_enc_unscaled: 1.4297
(1.4360) loss_bbox_enc_unscaled: 0.0451 (0.0502) loss_giou_enc_unscaled:
0.0747 (0.0933) cardinality_error_enc_unscaled: 293.5000 (287.6452) time:
0.3052 data: 0.0180 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.9495 (6.2746) loss_ce:
0.7422 (0.7848) loss_bbox: 0.2506 (0.3079) loss_giou: 0.1785 (0.2147)
loss_ce_0: 1.2422 (1.2594) loss_bbox_0: 0.2049 (0.2537) loss_giou_0: 0.1726
(0.1888) loss_ce_1: 0.8594 (0.8847) loss_bbox_1: 0.2549 (0.2883) loss_giou_1:
0.1581 (0.2052) loss_ce_enc: 1.4297 (1.4266) loss_bbox_enc: 0.2400 (0.2594)
loss_giou_enc: 0.1839 (0.2011) loss_ce_unscaled: 0.7422 (0.7848)
class_error_unscaled: 0.0000 (9.6943) loss_bbox_unscaled: 0.0501 (0.0616)
loss_giou_unscaled: 0.0893 (0.1074) cardinality_error_unscaled: 209.7500
(195.6513) loss_ce_0_unscaled: 1.2422 (1.2594) loss_bbox_0_unscaled: 0.0410
(0.0507) loss_giou_0_unscaled: 0.0863 (0.0944) cardinality_error_0_unscaled:
170.0000 (170.5724) loss_ce_1_unscaled: 0.8594 (0.8847) loss_bbox_1_unscaled:
0.0510 (0.0577) loss_giou_1_unscaled: 0.0791 (0.1026)
cardinality_error_1_unscaled: 184.0000 (187.3487) loss_ce_enc_unscaled: 1.4297
(1.4266) loss_bbox_enc_unscaled: 0.0480 (0.0519) loss_giou_enc_unscaled:
0.0919 (0.1006) cardinality_error_enc_unscaled: 293.5000 (288.8487) time:
0.3106 data: 0.0176 max mem: 9230
Test: Total time: 0:00:11 (0.3053 s / it)
Averaged stats: class_error: 0.00 loss: 5.9495 (6.2746) loss_ce: 0.7422
(0.7848) loss_bbox: 0.2506 (0.3079) loss_giou: 0.1785 (0.2147) loss_ce_0:
1.2422 (1.2594) loss_bbox_0: 0.2049 (0.2537) loss_giou_0: 0.1726 (0.1888)
loss_ce_1: 0.8594 (0.8847) loss_bbox_1: 0.2549 (0.2883) loss_giou_1: 0.1581
(0.2052) loss_ce_enc: 1.4297 (1.4266) loss_bbox_enc: 0.2400 (0.2594)
loss_giou_enc: 0.1839 (0.2011) loss_ce_unscaled: 0.7422 (0.7848)
class_error_unscaled: 0.0000 (9.6943) loss_bbox_unscaled: 0.0501 (0.0616)
loss_giou_unscaled: 0.0893 (0.1074) cardinality_error_unscaled: 209.7500
(195.6513) loss_ce_0_unscaled: 1.2422 (1.2594) loss_bbox_0_unscaled: 0.0410
(0.0507) loss_giou_0_unscaled: 0.0863 (0.0944) cardinality_error_0_unscaled:
170.0000 (170.5724) loss_ce_1_unscaled: 0.8594 (0.8847) loss_bbox_1_unscaled:
0.0510 (0.0577) loss_giou_1_unscaled: 0.0791 (0.1026)
cardinality_error_1_unscaled: 184.0000 (187.3487) loss_ce_enc_unscaled: 1.4297
(1.4266) loss_bbox_enc_unscaled: 0.0480 (0.0519) loss_giou_enc_unscaled:
0.0919 (0.1006) cardinality_error_enc_unscaled: 293.5000 (288.8487)
Accumulating evaluation results…

```
DONE (t=0.27s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.617
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.778
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.696
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.385
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.625
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.608
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.847
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.870
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.570
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.876
Test:  [ 0/38]  eta: 0:00:26  class_error: 0.00  loss: 5.9142 (5.9142)  loss_ce:
0.7773 (0.7773)  loss_bbox: 0.2355 (0.2355)  loss_giou: 0.1391 (0.1391)
loss_ce_0: 1.3438 (1.3438)  loss_bbox_0: 0.1991 (0.1991)  loss_giou_0: 0.1229
(0.1229)  loss_ce_1: 0.9141 (0.9141)  loss_bbox_1: 0.2353 (0.2353)  loss_giou_1:
0.1403 (0.1403)  loss_ce_enc: 1.5234 (1.5234)  loss_bbox_enc: 0.1684 (0.1684)
loss_giou_enc: 0.1152 (0.1152)  loss_ce_unscaled: 0.7773 (0.7773)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0471 (0.0471)
loss_giou_unscaled: 0.0695 (0.0695)  cardinality_error_unscaled: 191.5000
(191.5000)  loss_ce_0_unscaled: 1.3438 (1.3438)  loss_bbox_0_unscaled: 0.0398
(0.0398)  loss_giou_0_unscaled: 0.0614 (0.0614)  cardinality_error_0_unscaled:
138.0000 (138.0000)  loss_ce_1_unscaled: 0.9141 (0.9141)  loss_bbox_1_unscaled:
0.0471 (0.0471)  loss_giou_1_unscaled: 0.0701 (0.0701)
cardinality_error_1_unscaled: 166.2500 (166.2500)  loss_ce_enc_unscaled: 1.5234
(1.5234)  loss_bbox_enc_unscaled: 0.0337 (0.0337)  loss_giou_enc_unscaled:
0.0576 (0.0576)  cardinality_error_enc_unscaled: 289.2500 (289.2500)  time:
0.6929  data: 0.3065  max mem: 9230
Test:  [10/38]  eta: 0:00:09  class_error: 85.71  loss: 6.2486 (6.2764)
loss_ce: 0.8125 (0.8242)  loss_bbox: 0.2384 (0.2957)  loss_giou: 0.1635 (0.2019)
loss_ce_0: 1.3281 (1.3047)  loss_bbox_0: 0.1991 (0.2240)  loss_giou_0: 0.1238
(0.1653)  loss_ce_1: 0.9570 (0.9414)  loss_bbox_1: 0.2353 (0.2782)  loss_giou_1:
0.1431 (0.1986)  loss_ce_enc: 1.4453 (1.4460)  loss_bbox_enc: 0.2030 (0.2190)
loss_giou_enc: 0.1455 (0.1773)  loss_ce_unscaled: 0.8125 (0.8242)
class_error_unscaled: 0.0000 (15.9740)  loss_bbox_unscaled: 0.0477 (0.0591)
loss_giou_unscaled: 0.0818 (0.1009)  cardinality_error_unscaled: 205.0000
(200.7500)  loss_ce_0_unscaled: 1.3281 (1.3047)  loss_bbox_0_unscaled: 0.0398
(0.0448)  loss_giou_0_unscaled: 0.0619 (0.0827)  cardinality_error_0_unscaled:
196.2500 (184.9318)  loss_ce_1_unscaled: 0.9570 (0.9414)  loss_bbox_1_unscaled:
0.0471 (0.0556)  loss_giou_1_unscaled: 0.0716 (0.0993)
cardinality_error_1_unscaled: 197.2500 (189.5000)  loss_ce_enc_unscaled: 1.4453
(1.4460)  loss_bbox_enc_unscaled: 0.0406 (0.0438)  loss_giou_enc_unscaled:
0.0727 (0.0887)  cardinality_error_enc_unscaled: 289.2500 (284.0000)  time:
0.3229  data: 0.0440  max mem: 9230
Test:  [20/38]  eta: 0:00:05  class_error: 9.09  loss: 6.2486 (6.3626)  loss_ce:
0.8125 (0.8322)  loss_bbox: 0.3063 (0.3206)  loss_giou: 0.1916 (0.2016)
```

loss_ce_0: 1.3047 (1.3151) loss_bbox_0: 0.2189 (0.2309) loss_giou_0: 0.1488
(0.1614) loss_ce_1: 0.9570 (0.9518) loss_bbox_1: 0.3050 (0.2996) loss_giou_1:
0.1859 (0.1969) loss_ce_enc: 1.4453 (1.4531) loss_bbox_enc: 0.2107 (0.2276)
loss_giou_enc: 0.1455 (0.1717) loss_ce_unscaled: 0.8125 (0.8322)
class_error_unscaled: 0.0000 (13.6415) loss_bbox_unscaled: 0.0613 (0.0641)
loss_giou_unscaled: 0.0958 (0.1008) cardinality_error_unscaled: 207.7500
(203.7976) loss_ce_0_unscaled: 1.3047 (1.3151) loss_bbox_0_unscaled: 0.0438
(0.0462) loss_giou_0_unscaled: 0.0744 (0.0807) cardinality_error_0_unscaled:
201.2500 (189.7619) loss_ce_1_unscaled: 0.9570 (0.9518) loss_bbox_1_unscaled:
0.0610 (0.0599) loss_giou_1_unscaled: 0.0930 (0.0984)
cardinality_error_1_unscaled: 200.5000 (193.4286) loss_ce_enc_unscaled: 1.4453
(1.4531) loss_bbox_enc_unscaled: 0.0421 (0.0455) loss_giou_enc_unscaled:
0.0727 (0.0858) cardinality_error_enc_unscaled: 290.7500 (285.8095) time:
0.2855 data: 0.0177 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 5.8555 (6.1583) loss_ce:
0.7031 (0.7773) loss_bbox: 0.2737 (0.3023) loss_giou: 0.1894 (0.1994)
loss_ce_0: 1.2969 (1.2974) loss_bbox_0: 0.2018 (0.2182) loss_giou_0: 0.1488
(0.1602) loss_ce_1: 0.8594 (0.9005) loss_bbox_1: 0.2734 (0.2832) loss_giou_1:
0.1717 (0.1949) loss_ce_enc: 1.4453 (1.4488) loss_bbox_enc: 0.1854 (0.2090)
loss_giou_enc: 0.1295 (0.1671) loss_ce_unscaled: 0.7031 (0.7773)
class_error_unscaled: 0.0000 (13.2502) loss_bbox_unscaled: 0.0547 (0.0605)
loss_giou_unscaled: 0.0947 (0.0997) cardinality_error_unscaled: 217.0000
(211.1613) loss_ce_0_unscaled: 1.2969 (1.2974) loss_bbox_0_unscaled: 0.0404
(0.0436) loss_giou_0_unscaled: 0.0744 (0.0801) cardinality_error_0_unscaled:
194.2500 (191.9758) loss_ce_1_unscaled: 0.8594 (0.9005) loss_bbox_1_unscaled:
0.0547 (0.0566) loss_giou_1_unscaled: 0.0859 (0.0975)
cardinality_error_1_unscaled: 204.0000 (196.2661) loss_ce_enc_unscaled: 1.4453
(1.4488) loss_bbox_enc_unscaled: 0.0371 (0.0418) loss_giou_enc_unscaled:
0.0647 (0.0836) cardinality_error_enc_unscaled: 293.2500 (288.2742) time:
0.3249 data: 0.0186 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.8814 (6.2138) loss_ce:
0.7031 (0.7764) loss_bbox: 0.2737 (0.3096) loss_giou: 0.1756 (0.2105)
loss_ce_0: 1.2656 (1.2831) loss_bbox_0: 0.1992 (0.2311) loss_giou_0: 0.1610
(0.1740) loss_ce_1: 0.8359 (0.8895) loss_bbox_1: 0.2730 (0.2922) loss_giou_1:
0.1738 (0.2034) loss_ce_enc: 1.4375 (1.4389) loss_bbox_enc: 0.1854 (0.2245)
loss_giou_enc: 0.1365 (0.1806) loss_ce_unscaled: 0.7031 (0.7764)
class_error_unscaled: 9.0909 (12.1534) loss_bbox_unscaled: 0.0547 (0.0619)
loss_giou_unscaled: 0.0878 (0.1053) cardinality_error_unscaled: 222.0000
(216.2105) loss_ce_0_unscaled: 1.2656 (1.2831) loss_bbox_0_unscaled: 0.0398
(0.0462) loss_giou_0_unscaled: 0.0805 (0.0870) cardinality_error_0_unscaled:
200.0000 (196.9013) loss_ce_1_unscaled: 0.8359 (0.8895) loss_bbox_1_unscaled:
0.0546 (0.0584) loss_giou_1_unscaled: 0.0869 (0.1017)
cardinality_error_1_unscaled: 196.7500 (199.1908) loss_ce_enc_unscaled: 1.4375
(1.4389) loss_bbox_enc_unscaled: 0.0371 (0.0449) loss_giou_enc_unscaled:
0.0682 (0.0903) cardinality_error_enc_unscaled: 293.2500 (289.3158) time:
0.3231 data: 0.0185 max mem: 9230
Test: Total time: 0:00:12 (0.3186 s / it)
Averaged stats: class_error: 0.00 loss: 5.8814 (6.2138) loss_ce: 0.7031

(0.7764) loss_bbox: 0.2737 (0.3096) loss_giou: 0.1756 (0.2105) loss_ce_0:
1.2656 (1.2831) loss_bbox_0: 0.1992 (0.2311) loss_giou_0: 0.1610 (0.1740)
loss_ce_1: 0.8359 (0.8895) loss_bbox_1: 0.2730 (0.2922) loss_giou_1: 0.1738
(0.2034) loss_ce_enc: 1.4375 (1.4389) loss_bbox_enc: 0.1854 (0.2245)
loss_giou_enc: 0.1365 (0.1806) loss_ce_unscaled: 0.7031 (0.7764)
class_error_unscaled: 9.0909 (12.1534) loss_bbox_unscaled: 0.0547 (0.0619)
loss_giou_unscaled: 0.0878 (0.1053) cardinality_error_unscaled: 222.0000
(216.2105) loss_ce_0_unscaled: 1.2656 (1.2831) loss_bbox_0_unscaled: 0.0398
(0.0462) loss_giou_0_unscaled: 0.0805 (0.0870) cardinality_error_0_unscaled:
200.0000 (196.9013) loss_ce_1_unscaled: 0.8359 (0.8895) loss_bbox_1_unscaled:
0.0546 (0.0584) loss_giou_1_unscaled: 0.0869 (0.1017)
cardinality_error_1_unscaled: 196.7500 (199.1908) loss_ce_enc_unscaled: 1.4375
(1.4389) loss_bbox_enc_unscaled: 0.0371 (0.0449) loss_giou_enc_unscaled:
0.0682 (0.0903) cardinality_error_enc_unscaled: 293.2500 (289.3158)
Accumulating evaluation results…
DONE (t=0.28s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.620
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.791
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.704
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.449
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.628
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.622
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.851
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.883
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.547
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.889
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [2] [0/87] eta: 0:12:31 lr: 0.000100 class_error: 0.00 loss: 5.3263
(5.3263) loss_ce: 0.5390 (0.5390) loss_bbox: 0.2395 (0.2395) loss_giou:
0.1174 (0.1174) loss_ce_0: 1.1970 (1.1970) loss_bbox_0: 0.2443 (0.2443)
loss_giou_0: 0.1227 (0.1227) loss_ce_1: 0.6432 (0.6432) loss_bbox_1: 0.2631
(0.2631) loss_giou_1: 0.1285 (0.1285) loss_ce_enc: 1.5273 (1.5273)
loss_bbox_enc: 0.1909 (0.1909) loss_giou_enc: 0.1134 (0.1134)
loss_ce_unscaled: 0.5390 (0.5390) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0479 (0.0479) loss_giou_unscaled: 0.0587 (0.0587)
cardinality_error_unscaled: 1979.7500 (1979.7500) loss_ce_0_unscaled: 1.1970
(1.1970) loss_bbox_0_unscaled: 0.0489 (0.0489) loss_giou_0_unscaled: 0.0613
(0.0613) cardinality_error_0_unscaled: 1570.2500 (1570.2500)
loss_ce_1_unscaled: 0.6432 (0.6432) loss_bbox_1_unscaled: 0.0526 (0.0526)
loss_giou_1_unscaled: 0.0643 (0.0643) cardinality_error_1_unscaled: 2091.5000
(2091.5000) loss_ce_enc_unscaled: 1.5273 (1.5273) loss_bbox_enc_unscaled:
0.0382 (0.0382) loss_giou_enc_unscaled: 0.0567 (0.0567)
cardinality_error_enc_unscaled: 3791.7500 (3791.7500) time: 8.6327 data:

1.2666 max mem: 9230
Epoch: [2] [10/87] eta: 0:09:23 lr: 0.000100 class_error: 0.00 loss: 5.9048
(5.8674) loss_ce: 0.6105 (0.6555) loss_bbox: 0.3208 (0.2974) loss_giou:
0.1670 (0.1671) loss_ce_0: 1.2653 (1.2729) loss_bbox_0: 0.2157 (0.2276)
loss_giou_0: 0.1227 (0.1331) loss_ce_1: 0.7275 (0.7908) loss_bbox_1: 0.2871
(0.2935) loss_giou_1: 0.1556 (0.1669) loss_ce_enc: 1.4458 (1.4519)
loss_bbox_enc: 0.2622 (0.2559) loss_giou_enc: 0.1578 (0.1548)
loss_ce_unscaled: 0.6105 (0.6555) class_error_unscaled: 3.8462 (7.0463)
loss_bbox_unscaled: 0.0642 (0.0595) loss_giou_unscaled: 0.0835 (0.0836)
cardinality_error_unscaled: 2852.2500 (2865.6136) loss_ce_0_unscaled: 1.2653
(1.2729) loss_bbox_0_unscaled: 0.0431 (0.0455) loss_giou_0_unscaled: 0.0613
(0.0666) cardinality_error_0_unscaled: 2418.7500 (2453.1818)
loss_ce_1_unscaled: 0.7275 (0.7908) loss_bbox_1_unscaled: 0.0574 (0.0587)
loss_giou_1_unscaled: 0.0778 (0.0835) cardinality_error_1_unscaled: 2724.0000
(2692.8864) loss_ce_enc_unscaled: 1.4458 (1.4519) loss_bbox_enc_unscaled:
0.0524 (0.0512) loss_giou_enc_unscaled: 0.0789 (0.0774)
cardinality_error_enc_unscaled: 3808.0000 (3801.8409) time: 7.3236 data:
0.1557 max mem: 9230
Epoch: [2] [20/87] eta: 0:08:03 lr: 0.000100 class_error: 20.51 loss:
6.2105 (6.3345) loss_ce: 0.7246 (0.7073) loss_bbox: 0.3465 (0.3659)
loss_giou: 0.2004 (0.2144) loss_ce_0: 1.2412 (1.2535) loss_bbox_0: 0.2589
(0.2826) loss_giou_0: 0.1470 (0.1769) loss_ce_1: 0.8073 (0.8217) loss_bbox_1:
0.3619 (0.3633) loss_giou_1: 0.1958 (0.2144) loss_ce_enc: 1.4458 (1.4402)
loss_bbox_enc: 0.2668 (0.3060) loss_giou_enc: 0.1623 (0.1882)
loss_ce_unscaled: 0.7246 (0.7073) class_error_unscaled: 6.9231 (9.3238)
loss_bbox_unscaled: 0.0693 (0.0732) loss_giou_unscaled: 0.1002 (0.1072)
cardinality_error_unscaled: 2849.5000 (2796.1905) loss_ce_0_unscaled: 1.2412
(1.2535) loss_bbox_0_unscaled: 0.0518 (0.0565) loss_giou_0_unscaled: 0.0735
(0.0884) cardinality_error_0_unscaled: 2147.7500 (2139.4405)
loss_ce_1_unscaled: 0.8073 (0.8217) loss_bbox_1_unscaled: 0.0724 (0.0727)
loss_giou_1_unscaled: 0.0979 (0.1072) cardinality_error_1_unscaled: 2599.5000
(2526.1071) loss_ce_enc_unscaled: 1.4458 (1.4402) loss_bbox_enc_unscaled:
0.0534 (0.0612) loss_giou_enc_unscaled: 0.0812 (0.0941)
cardinality_error_enc_unscaled: 3787.5000 (3761.5595) time: 7.1453 data:
0.0469 max mem: 9230
Epoch: [2] [30/87] eta: 0:06:49 lr: 0.000100 class_error: 38.46 loss:
6.5238 (6.3856) loss_ce: 0.7642 (0.7283) loss_bbox: 0.4250 (0.3705)
loss_giou: 0.2112 (0.2107) loss_ce_0: 1.2379 (1.2466) loss_bbox_0: 0.3210
(0.2953) loss_giou_0: 0.1717 (0.1777) loss_ce_1: 0.9005 (0.8449) loss_bbox_1:
0.3806 (0.3608) loss_giou_1: 0.1887 (0.2080) loss_ce_enc: 1.4546 (1.4505)
loss_bbox_enc: 0.2858 (0.3055) loss_giou_enc: 0.1646 (0.1868)
loss_ce_unscaled: 0.7642 (0.7283) class_error_unscaled: 8.5470 (10.9437)
loss_bbox_unscaled: 0.0850 (0.0741) loss_giou_unscaled: 0.1056 (0.1054)
cardinality_error_unscaled: 2908.0000 (2845.7097) loss_ce_0_unscaled: 1.2379
(1.2466) loss_bbox_0_unscaled: 0.0642 (0.0591) loss_giou_0_unscaled: 0.0859
(0.0889) cardinality_error_0_unscaled: 1831.5000 (2089.6613)
loss_ce_1_unscaled: 0.9005 (0.8449) loss_bbox_1_unscaled: 0.0761 (0.0722)
loss_giou_1_unscaled: 0.0944 (0.1040) cardinality_error_1_unscaled: 2463.5000

(2534.5645) loss_ce_enc_unscaled: 1.4546 (1.4505) loss_bbox_enc_unscaled: 0.0572 (0.0611) loss_giou_enc_unscaled: 0.0823 (0.0934) cardinality_error_enc_unscaled: 3758.5000 (3757.4597) time: 7.0952 data: 0.0491 max mem: 9230
Epoch: [2] [40/87] eta: 0:05:37 lr: 0.000100 class_error: 2.56 loss: 6.3665 (6.3572) loss_ce: 0.7554 (0.7237) loss_bbox: 0.3939 (0.3723) loss_giou: 0.2112 (0.2135) loss_ce_0: 1.2119 (1.2345) loss_bbox_0: 0.2958 (0.2930) loss_giou_0: 0.1593 (0.1787) loss_ce_1: 0.8768 (0.8483) loss_bbox_1: 0.3303 (0.3550) loss_giou_1: 0.1743 (0.2081) loss_ce_enc: 1.4758 (1.4495) loss_bbox_enc: 0.2565 (0.2960) loss_giou_enc: 0.1483 (0.1847) loss_ce_unscaled: 0.7554 (0.7237) class_error_unscaled: 4.6154 (10.1788) loss_bbox_unscaled: 0.0788 (0.0745) loss_giou_unscaled: 0.1056 (0.1067) cardinality_error_unscaled: 3041.5000 (2872.0976) loss_ce_0_unscaled: 1.2119 (1.2345) loss_bbox_0_unscaled: 0.0592 (0.0586) loss_giou_0_unscaled: 0.0797 (0.0893) cardinality_error_0_unscaled: 1868.7500 (2057.6951) loss_ce_1_unscaled: 0.8768 (0.8483) loss_bbox_1_unscaled: 0.0661 (0.0710) loss_giou_1_unscaled: 0.0872 (0.1041) cardinality_error_1_unscaled: 2551.7500 (2544.1707) loss_ce_enc_unscaled: 1.4758 (1.4495) loss_bbox_enc_unscaled: 0.0513 (0.0592) loss_giou_enc_unscaled: 0.0742 (0.0923) cardinality_error_enc_unscaled: 3770.2500 (3759.1890) time: 7.1417 data: 0.0489 max mem: 9230
Epoch: [2] [50/87] eta: 0:04:25 lr: 0.000100 class_error: 10.49 loss: 6.3277 (6.3901) loss_ce: 0.6596 (0.7122) loss_bbox: 0.3939 (0.3784) loss_giou: 0.2241 (0.2226) loss_ce_0: 1.1914 (1.2208) loss_bbox_0: 0.2897 (0.3063) loss_giou_0: 0.1657 (0.1906) loss_ce_1: 0.7772 (0.8344) loss_bbox_1: 0.3437 (0.3643) loss_giou_1: 0.2054 (0.2195) loss_ce_enc: 1.4139 (1.4395) loss_bbox_enc: 0.2700 (0.3070) loss_giou_enc: 0.1503 (0.1944) loss_ce_unscaled: 0.6596 (0.7122) class_error_unscaled: 2.5641 (9.5517) loss_bbox_unscaled: 0.0788 (0.0757) loss_giou_unscaled: 0.1121 (0.1113) cardinality_error_unscaled: 2876.5000 (2894.8235) loss_ce_0_unscaled: 1.1914 (1.2208) loss_bbox_0_unscaled: 0.0579 (0.0613) loss_giou_0_unscaled: 0.0828 (0.0953) cardinality_error_0_unscaled: 2121.5000 (2125.3333) loss_ce_1_unscaled: 0.7772 (0.8344) loss_bbox_1_unscaled: 0.0687 (0.0729) loss_giou_1_unscaled: 0.1027 (0.1098) cardinality_error_1_unscaled: 2388.0000 (2498.3137) loss_ce_enc_unscaled: 1.4139 (1.4395) loss_bbox_enc_unscaled: 0.0540 (0.0614) loss_giou_enc_unscaled: 0.0751 (0.0972) cardinality_error_enc_unscaled: 3770.2500 (3754.8725) time: 7.1425 data: 0.0492 max mem: 9230
Epoch: [2] [60/87] eta: 0:03:12 lr: 0.000100 class_error: 20.00 loss: 6.0326 (6.3223) loss_ce: 0.6633 (0.7021) loss_bbox: 0.3265 (0.3713) loss_giou: 0.2033 (0.2203) loss_ce_0: 1.1618 (1.2122) loss_bbox_0: 0.2630 (0.3021) loss_giou_0: 0.1666 (0.1889) loss_ce_1: 0.7656 (0.8209) loss_bbox_1: 0.3292 (0.3590) loss_giou_1: 0.2054 (0.2178) loss_ce_enc: 1.4093 (1.4353) loss_bbox_enc: 0.2688 (0.3001) loss_giou_enc: 0.1691 (0.1924) loss_ce_unscaled: 0.6633 (0.7021) class_error_unscaled: 4.6154 (9.3676) loss_bbox_unscaled: 0.0653 (0.0743) loss_giou_unscaled: 0.1017 (0.1102) cardinality_error_unscaled: 3117.0000 (2921.9836) loss_ce_0_unscaled: 1.1618 (1.2122) loss_bbox_0_unscaled: 0.0526 (0.0604) loss_giou_0_unscaled: 0.0833

(0.0944) cardinality_error_0_unscaled: 2596.7500 (2198.7172)
loss_ce_1_unscaled: 0.7656 (0.8209) loss_bbox_1_unscaled: 0.0658 (0.0718)
loss_giou_1_unscaled: 0.1027 (0.1089) cardinality_error_1_unscaled: 2388.5000
(2481.9344) loss_ce_enc_unscaled: 1.4093 (1.4353) loss_bbox_enc_unscaled:
0.0538 (0.0600) loss_giou_enc_unscaled: 0.0846 (0.0962)
cardinality_error_enc_unscaled: 3739.5000 (3733.2295) time: 7.0430 data:
0.0490 max mem: 9230
Epoch: [2] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 19.78 loss:
5.9589 (6.2760) loss_ce: 0.6536 (0.6966) loss_bbox: 0.3035 (0.3676)
loss_giou: 0.1996 (0.2196) loss_ce_0: 1.1475 (1.2008) loss_bbox_0: 0.2741
(0.3000) loss_giou_0: 0.1711 (0.1888) loss_ce_1: 0.7350 (0.8117) loss_bbox_1:
0.3035 (0.3556) loss_giou_1: 0.2037 (0.2171) loss_ce_enc: 1.4061 (1.4336)
loss_bbox_enc: 0.2548 (0.2938) loss_giou_enc: 0.1803 (0.1907)
loss_ce_unscaled: 0.6536 (0.6966) class_error_unscaled: 1.0989 (9.7345)
loss_bbox_unscaled: 0.0607 (0.0735) loss_giou_unscaled: 0.0998 (0.1098)
cardinality_error_unscaled: 3041.0000 (2921.0423) loss_ce_0_unscaled: 1.1475
(1.2008) loss_bbox_0_unscaled: 0.0548 (0.0600) loss_giou_0_unscaled: 0.0856
(0.0944) cardinality_error_0_unscaled: 2361.5000 (2203.4261)
loss_ce_1_unscaled: 0.7350 (0.8117) loss_bbox_1_unscaled: 0.0607 (0.0711)
loss_giou_1_unscaled: 0.1018 (0.1086) cardinality_error_1_unscaled: 2035.0000
(2410.8063) loss_ce_enc_unscaled: 1.4061 (1.4336) loss_bbox_enc_unscaled:
0.0510 (0.0588) loss_giou_enc_unscaled: 0.0901 (0.0953)
cardinality_error_enc_unscaled: 3667.5000 (3714.5951) time: 6.9980 data:
0.0487 max mem: 9230
Epoch: [2] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss: 6.0279
(6.2620) loss_ce: 0.6573 (0.6960) loss_bbox: 0.3432 (0.3694) loss_giou:
0.1937 (0.2163) loss_ce_0: 1.1450 (1.1976) loss_bbox_0: 0.3029 (0.3010)
loss_giou_0: 0.1643 (0.1854) loss_ce_1: 0.7582 (0.8122) loss_bbox_1: 0.3305
(0.3558) loss_giou_1: 0.1844 (0.2129) loss_ce_enc: 1.4164 (1.4329)
loss_bbox_enc: 0.2703 (0.2941) loss_giou_enc: 0.1623 (0.1884)
loss_ce_unscaled: 0.6573 (0.6960) class_error_unscaled: 1.0989 (9.6472)
loss_bbox_unscaled: 0.0686 (0.0739) loss_giou_unscaled: 0.0969 (0.1082)
cardinality_error_unscaled: 2947.0000 (2907.4290) loss_ce_0_unscaled: 1.1450
(1.1976) loss_bbox_0_unscaled: 0.0606 (0.0602) loss_giou_0_unscaled: 0.0822
(0.0927) cardinality_error_0_unscaled: 2068.5000 (2181.5895)
loss_ce_1_unscaled: 0.7582 (0.8122) loss_bbox_1_unscaled: 0.0661 (0.0712)
loss_giou_1_unscaled: 0.0922 (0.1064) cardinality_error_1_unscaled: 2001.5000
(2375.8642) loss_ce_enc_unscaled: 1.4164 (1.4329) loss_bbox_enc_unscaled:
0.0541 (0.0588) loss_giou_enc_unscaled: 0.0811 (0.0942)
cardinality_error_enc_unscaled: 3563.5000 (3686.9753) time: 7.0010 data:
0.0488 max mem: 9230
Epoch: [2] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 5.8319
(6.2407) loss_ce: 0.6405 (0.6920) loss_bbox: 0.3286 (0.3670) loss_giou:
0.1681 (0.2137) loss_ce_0: 1.1303 (1.1914) loss_bbox_0: 0.2813 (0.3018)
loss_giou_0: 0.1551 (0.1858) loss_ce_1: 0.7452 (0.8068) loss_bbox_1: 0.3011
(0.3547) loss_giou_1: 0.1733 (0.2107) loss_ce_enc: 1.4398 (1.4328)
loss_bbox_enc: 0.2703 (0.2949) loss_giou_enc: 0.1622 (0.1890)
loss_ce_unscaled: 0.6405 (0.6920) class_error_unscaled: 0.0000 (9.4978)

loss_bbox_unscaled: 0.0657 (0.0734) loss_giou_unscaled: 0.0840 (0.1068)
cardinality_error_unscaled: 2965.7500 (2932.5345) loss_ce_0_unscaled: 1.1303
(1.1914) loss_bbox_0_unscaled: 0.0563 (0.0604) loss_giou_0_unscaled: 0.0775
(0.0929) cardinality_error_0_unscaled: 1995.7500 (2169.7644)
loss_ce_1_unscaled: 0.7452 (0.8068) loss_bbox_1_unscaled: 0.0602 (0.0709)
loss_giou_1_unscaled: 0.0867 (0.1054) cardinality_error_1_unscaled: 2035.0000
(2347.8908) loss_ce_enc_unscaled: 1.4398 (1.4328) loss_bbox_enc_unscaled:
0.0541 (0.0590) loss_giou_enc_unscaled: 0.0811 (0.0945)
cardinality_error_enc_unscaled: 3581.0000 (3682.3132) time: 7.0932 data:
0.0492 max mem: 9230
Epoch: [2] Total time: 0:10:18 (7.1081 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 5.8319 (6.2407) loss_ce:
0.6405 (0.6920) loss_bbox: 0.3286 (0.3670) loss_giou: 0.1681 (0.2137)
loss_ce_0: 1.1303 (1.1914) loss_bbox_0: 0.2813 (0.3018) loss_giou_0: 0.1551
(0.1858) loss_ce_1: 0.7452 (0.8068) loss_bbox_1: 0.3011 (0.3547) loss_giou_1:
0.1733 (0.2107) loss_ce_enc: 1.4398 (1.4328) loss_bbox_enc: 0.2703 (0.2949)
loss_giou_enc: 0.1622 (0.1890) loss_ce_unscaled: 0.6405 (0.6920)
class_error_unscaled: 0.0000 (9.4978) loss_bbox_unscaled: 0.0657 (0.0734)
loss_giou_unscaled: 0.0840 (0.1068) cardinality_error_unscaled: 2965.7500
(2932.5345) loss_ce_0_unscaled: 1.1303 (1.1914) loss_bbox_0_unscaled: 0.0563
(0.0604) loss_giou_0_unscaled: 0.0775 (0.0929) cardinality_error_0_unscaled:
1995.7500 (2169.7644) loss_ce_1_unscaled: 0.7452 (0.8068)
loss_bbox_1_unscaled: 0.0602 (0.0709) loss_giou_1_unscaled: 0.0867 (0.1054)
cardinality_error_1_unscaled: 2035.0000 (2347.8908) loss_ce_enc_unscaled:
1.4398 (1.4328) loss_bbox_enc_unscaled: 0.0541 (0.0590)
loss_giou_enc_unscaled: 0.0811 (0.0945) cardinality_error_enc_unscaled:
3581.0000 (3682.3132)
Test: [0/38] eta: 0:00:26 class_error: 25.00 loss: 5.3634 (5.3634)
loss_ce: 0.6562 (0.6562) loss_bbox: 0.1716 (0.1716) loss_giou: 0.1244 (0.1244)
loss_ce_0: 1.1719 (1.1719) loss_bbox_0: 0.1742 (0.1742) loss_giou_0: 0.0989
(0.0989) loss_ce_1: 0.8789 (0.8789) loss_bbox_1: 0.1640 (0.1640) loss_giou_1:
0.1196 (0.1196) loss_ce_enc: 1.4844 (1.4844) loss_bbox_enc: 0.1846 (0.1846)
loss_giou_enc: 0.1348 (0.1348) loss_ce_unscaled: 0.6562 (0.6562)
class_error_unscaled: 25.0000 (25.0000) loss_bbox_unscaled: 0.0343 (0.0343)
loss_giou_unscaled: 0.0622 (0.0622) cardinality_error_unscaled: 196.2500
(196.2500) loss_ce_0_unscaled: 1.1719 (1.1719) loss_bbox_0_unscaled: 0.0348
(0.0348) loss_giou_0_unscaled: 0.0494 (0.0494) cardinality_error_0_unscaled:
71.5000 (71.5000) loss_ce_1_unscaled: 0.8789 (0.8789) loss_bbox_1_unscaled:
0.0328 (0.0328) loss_giou_1_unscaled: 0.0598 (0.0598)
cardinality_error_1_unscaled: 83.0000 (83.0000) loss_ce_enc_unscaled: 1.4844
(1.4844) loss_bbox_enc_unscaled: 0.0369 (0.0369) loss_giou_enc_unscaled:
0.0674 (0.0674) cardinality_error_enc_unscaled: 268.0000 (268.0000) time:
0.6992 data: 0.3215 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 57.14 loss: 5.8127 (5.9515)
loss_ce: 0.7031 (0.7330) loss_bbox: 0.2576 (0.2927) loss_giou: 0.1670 (0.2071)
loss_ce_0: 1.1406 (1.1712) loss_bbox_0: 0.2175 (0.2246) loss_giou_0: 0.1437
(0.1671) loss_ce_1: 0.8203 (0.8299) loss_bbox_1: 0.2338 (0.2763) loss_giou_1:
0.1665 (0.1907) loss_ce_enc: 1.3906 (1.4006) loss_bbox_enc: 0.2264 (0.2683)

loss_giou_enc: 0.1750 (0.1901) loss_ce_unscaled: 0.7031 (0.7330)
class_error_unscaled: 0.0000 (12.6948) loss_bbox_unscaled: 0.0515 (0.0585)
loss_giou_unscaled: 0.0835 (0.1035) cardinality_error_unscaled: 219.2500
(234.0455) loss_ce_0_unscaled: 1.1406 (1.1712) loss_bbox_0_unscaled: 0.0435
(0.0449) loss_giou_0_unscaled: 0.0718 (0.0835) cardinality_error_0_unscaled:
153.7500 (144.2955) loss_ce_1_unscaled: 0.8203 (0.8299) loss_bbox_1_unscaled:
0.0468 (0.0553) loss_giou_1_unscaled: 0.0832 (0.0954)
cardinality_error_1_unscaled: 157.5000 (145.8636) loss_ce_enc_unscaled: 1.3906
(1.4006) loss_bbox_enc_unscaled: 0.0453 (0.0537) loss_giou_enc_unscaled:
0.0875 (0.0951) cardinality_error_enc_unscaled: 278.5000 (275.1591) time:
0.3165 data: 0.0458 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 9.09 loss: 5.8286 (5.9374) loss_ce:
0.6836 (0.6889) loss_bbox: 0.3021 (0.3174) loss_giou: 0.1670 (0.2013)
loss_ce_0: 1.1875 (1.2020) loss_bbox_0: 0.2106 (0.2163) loss_giou_0: 0.1318
(0.1526) loss_ce_1: 0.8008 (0.8222) loss_bbox_1: 0.3020 (0.3060) loss_giou_1:
0.1715 (0.1908) loss_ce_enc: 1.3906 (1.4107) loss_bbox_enc: 0.2172 (0.2556)
loss_giou_enc: 0.1708 (0.1737) loss_ce_unscaled: 0.6836 (0.6889)
class_error_unscaled: 0.0000 (8.3524) loss_bbox_unscaled: 0.0604 (0.0635)
loss_giou_unscaled: 0.0835 (0.1006) cardinality_error_unscaled: 240.0000
(231.7143) loss_ce_0_unscaled: 1.1875 (1.2020) loss_bbox_0_unscaled: 0.0421
(0.0433) loss_giou_0_unscaled: 0.0659 (0.0763) cardinality_error_0_unscaled:
164.2500 (156.0238) loss_ce_1_unscaled: 0.8008 (0.8222) loss_bbox_1_unscaled:
0.0604 (0.0612) loss_giou_1_unscaled: 0.0857 (0.0954)
cardinality_error_1_unscaled: 150.2500 (143.9048) loss_ce_enc_unscaled: 1.3906
(1.4107) loss_bbox_enc_unscaled: 0.0434 (0.0511) loss_giou_enc_unscaled:
0.0854 (0.0869) cardinality_error_enc_unscaled: 278.0000 (271.6786) time:
0.2916 data: 0.0200 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 5.5066 (5.7303) loss_ce:
0.5859 (0.6470) loss_bbox: 0.2224 (0.2919) loss_giou: 0.1664 (0.1961)
loss_ce_0: 1.1875 (1.1806) loss_bbox_0: 0.1812 (0.2105) loss_giou_0: 0.1365
(0.1563) loss_ce_1: 0.7266 (0.7694) loss_bbox_1: 0.2712 (0.2782) loss_giou_1:
0.1715 (0.1867) loss_ce_enc: 1.3672 (1.3957) loss_bbox_enc: 0.2131 (0.2417)
loss_giou_enc: 0.1570 (0.1764) loss_ce_unscaled: 0.5859 (0.6470)
class_error_unscaled: 0.0000 (6.5965) loss_bbox_unscaled: 0.0445 (0.0584)
loss_giou_unscaled: 0.0832 (0.0981) cardinality_error_unscaled: 259.5000
(241.1290) loss_ce_0_unscaled: 1.1875 (1.1806) loss_bbox_0_unscaled: 0.0362
(0.0421) loss_giou_0_unscaled: 0.0683 (0.0781) cardinality_error_0_unscaled:
164.2500 (161.8548) loss_ce_1_unscaled: 0.7266 (0.7694) loss_bbox_1_unscaled:
0.0542 (0.0556) loss_giou_1_unscaled: 0.0857 (0.0933)
cardinality_error_1_unscaled: 146.7500 (143.4516) loss_ce_enc_unscaled: 1.3672
(1.3957) loss_bbox_enc_unscaled: 0.0426 (0.0483) loss_giou_enc_unscaled:
0.0785 (0.0882) cardinality_error_enc_unscaled: 281.2500 (275.8871) time:
0.2935 data: 0.0200 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.4704 (5.7573) loss_ce:
0.5859 (0.6448) loss_bbox: 0.2224 (0.2965) loss_giou: 0.1763 (0.2020)
loss_ce_0: 1.1484 (1.1765) loss_bbox_0: 0.1992 (0.2185) loss_giou_0: 0.1640
(0.1636) loss_ce_1: 0.7227 (0.7671) loss_bbox_1: 0.2246 (0.2790) loss_giou_1:
0.1785 (0.1913) loss_ce_enc: 1.3984 (1.3917) loss_bbox_enc: 0.2131 (0.2432)

```
loss_giou_enc: 0.1708 (0.1832)  loss_ce_unscaled: 0.5859 (0.6448)
class_error_unscaled: 0.0000 (6.3964)  loss_bbox_unscaled: 0.0445 (0.0593)
loss_giou_unscaled: 0.0881 (0.1010)  cardinality_error_unscaled: 268.5000
(245.9539)  loss_ce_0_unscaled: 1.1484 (1.1765)  loss_bbox_0_unscaled: 0.0398
(0.0437)  loss_giou_0_unscaled: 0.0820 (0.0818)  cardinality_error_0_unscaled:
170.5000 (169.5197)  loss_ce_1_unscaled: 0.7227 (0.7671)  loss_bbox_1_unscaled:
0.0449 (0.0558)  loss_giou_1_unscaled: 0.0892 (0.0957)
cardinality_error_1_unscaled: 140.5000 (148.2829)  loss_ce_enc_unscaled: 1.3984
(1.3917)  loss_bbox_enc_unscaled: 0.0426 (0.0486)  loss_giou_enc_unscaled:
0.0854 (0.0916)  cardinality_error_enc_unscaled: 282.5000 (277.4803)  time:
0.3091  data: 0.0183  max mem: 9230
Test: Total time: 0:00:11 (0.3114 s / it)
Averaged stats: class_error: 0.00  loss: 5.4704 (5.7573)  loss_ce: 0.5859
(0.6448)  loss_bbox: 0.2224 (0.2965)  loss_giou: 0.1763 (0.2020)  loss_ce_0:
1.1484 (1.1765)  loss_bbox_0: 0.1992 (0.2185)  loss_giou_0: 0.1640 (0.1636)
loss_ce_1: 0.7227 (0.7671)  loss_bbox_1: 0.2246 (0.2790)  loss_giou_1: 0.1785
(0.1913)  loss_ce_enc: 1.3984 (1.3917)  loss_bbox_enc: 0.2131 (0.2432)
loss_giou_enc: 0.1708 (0.1832)  loss_ce_unscaled: 0.5859 (0.6448)
class_error_unscaled: 0.0000 (6.3964)  loss_bbox_unscaled: 0.0445 (0.0593)
loss_giou_unscaled: 0.0881 (0.1010)  cardinality_error_unscaled: 268.5000
(245.9539)  loss_ce_0_unscaled: 1.1484 (1.1765)  loss_bbox_0_unscaled: 0.0398
(0.0437)  loss_giou_0_unscaled: 0.0820 (0.0818)  cardinality_error_0_unscaled:
170.5000 (169.5197)  loss_ce_1_unscaled: 0.7227 (0.7671)  loss_bbox_1_unscaled:
0.0449 (0.0558)  loss_giou_1_unscaled: 0.0892 (0.0957)
cardinality_error_1_unscaled: 140.5000 (148.2829)  loss_ce_enc_unscaled: 1.3984
(1.3917)  loss_bbox_enc_unscaled: 0.0426 (0.0486)  loss_giou_enc_unscaled:
0.0854 (0.0916)  cardinality_error_enc_unscaled: 282.5000 (277.4803)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.735
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.904
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.815
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.417
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.743
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.635
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.864
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.886
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.645
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.892
Test: [ 0/38]  eta: 0:00:25  class_error: 0.00  loss: 5.5670 (5.5670)  loss_ce:
0.6172 (0.6172)  loss_bbox: 0.2295 (0.2295)  loss_giou: 0.1395 (0.1395)
loss_ce_0: 1.1484 (1.1484)  loss_bbox_0: 0.1959 (0.1959)  loss_giou_0: 0.1309
(0.1309)  loss_ce_1: 0.8164 (0.8164)  loss_bbox_1: 0.2790 (0.2790)  loss_giou_1:
0.1529 (0.1529)  loss_ce_enc: 1.4922 (1.4922)  loss_bbox_enc: 0.2314 (0.2314)
loss_giou_enc: 0.1335 (0.1335)  loss_ce_unscaled: 0.6172 (0.6172)
```

class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0459 (0.0459)
loss_giou_unscaled: 0.0698 (0.0698) cardinality_error_unscaled: 187.0000
(187.0000) loss_ce_0_unscaled: 1.1484 (1.1484) loss_bbox_0_unscaled: 0.0392
(0.0392) loss_giou_0_unscaled: 0.0655 (0.0655) cardinality_error_0_unscaled:
76.2500 (76.2500) loss_ce_1_unscaled: 0.8164 (0.8164) loss_bbox_1_unscaled:
0.0558 (0.0558) loss_giou_1_unscaled: 0.0764 (0.0764)
cardinality_error_1_unscaled: 89.2500 (89.2500) loss_ce_enc_unscaled: 1.4922
(1.4922) loss_bbox_enc_unscaled: 0.0463 (0.0463) loss_giou_enc_unscaled:
0.0668 (0.0668) cardinality_error_enc_unscaled: 260.2500 (260.2500) time:
0.6766 data: 0.2935 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 42.86 loss: 5.6993 (5.8344)
loss_ce: 0.6953 (0.7054) loss_bbox: 0.2469 (0.2767) loss_giou: 0.1529 (0.1881)
loss_ce_0: 1.1406 (1.1669) loss_bbox_0: 0.2096 (0.2251) loss_giou_0: 0.1309
(0.1682) loss_ce_1: 0.8125 (0.7972) loss_bbox_1: 0.2549 (0.2788) loss_giou_1:
0.1437 (0.1902) loss_ce_enc: 1.4219 (1.4105) loss_bbox_enc: 0.2314 (0.2500)
loss_giou_enc: 0.1495 (0.1772) loss_ce_unscaled: 0.6953 (0.7054)
class_error_unscaled: 0.0000 (8.2143) loss_bbox_unscaled: 0.0494 (0.0553)
loss_giou_unscaled: 0.0765 (0.0941) cardinality_error_unscaled: 219.5000
(223.5227) loss_ce_0_unscaled: 1.1406 (1.1669) loss_bbox_0_unscaled: 0.0419
(0.0450) loss_giou_0_unscaled: 0.0655 (0.0841) cardinality_error_0_unscaled:
158.7500 (149.0455) loss_ce_1_unscaled: 0.8125 (0.7972) loss_bbox_1_unscaled:
0.0510 (0.0558) loss_giou_1_unscaled: 0.0719 (0.0951)
cardinality_error_1_unscaled: 160.0000 (154.5909) loss_ce_enc_unscaled: 1.4219
(1.4105) loss_bbox_enc_unscaled: 0.0463 (0.0500) loss_giou_enc_unscaled:
0.0747 (0.0886) cardinality_error_enc_unscaled: 268.2500 (267.4545) time:
0.3212 data: 0.0422 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.6993 (5.7855) loss_ce:
0.6953 (0.6798) loss_bbox: 0.2516 (0.2867) loss_giou: 0.1538 (0.1788)
loss_ce_0: 1.1797 (1.1808) loss_bbox_0: 0.2096 (0.2214) loss_giou_0: 0.1314
(0.1568) loss_ce_1: 0.8125 (0.8085) loss_bbox_1: 0.2549 (0.2780) loss_giou_1:
0.1555 (0.1773) loss_ce_enc: 1.4141 (1.4189) loss_bbox_enc: 0.2224 (0.2360)
loss_giou_enc: 0.1491 (0.1625) loss_ce_unscaled: 0.6953 (0.6798)
class_error_unscaled: 0.0000 (6.0488) loss_bbox_unscaled: 0.0503 (0.0573)
loss_giou_unscaled: 0.0769 (0.0894) cardinality_error_unscaled: 219.5000
(220.6667) loss_ce_0_unscaled: 1.1797 (1.1808) loss_bbox_0_unscaled: 0.0419
(0.0443) loss_giou_0_unscaled: 0.0657 (0.0784) cardinality_error_0_unscaled:
161.7500 (157.6548) loss_ce_1_unscaled: 0.8125 (0.8085) loss_bbox_1_unscaled:
0.0510 (0.0556) loss_giou_1_unscaled: 0.0778 (0.0887)
cardinality_error_1_unscaled: 155.2500 (149.8333) loss_ce_enc_unscaled: 1.4141
(1.4189) loss_bbox_enc_unscaled: 0.0445 (0.0472) loss_giou_enc_unscaled:
0.0746 (0.0812) cardinality_error_enc_unscaled: 272.5000 (266.0595) time:
0.3018 data: 0.0207 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 5.2721 (5.5787) loss_ce:
0.5469 (0.6280) loss_bbox: 0.2108 (0.2666) loss_giou: 0.1672 (0.1784)
loss_ce_0: 1.1484 (1.1648) loss_bbox_0: 0.1716 (0.2053) loss_giou_0: 0.1314
(0.1537) loss_ce_1: 0.6875 (0.7511) loss_bbox_1: 0.2377 (0.2599) loss_giou_1:
0.1587 (0.1772) loss_ce_enc: 1.4141 (1.4045) loss_bbox_enc: 0.2015 (0.2246)
loss_giou_enc: 0.1472 (0.1647) loss_ce_unscaled: 0.5469 (0.6280)

class_error_unscaled: 0.0000 (4.3908) loss_bbox_unscaled: 0.0422 (0.0533)
loss_giou_unscaled: 0.0836 (0.0892) cardinality_error_unscaled: 247.0000
(229.9194) loss_ce_0_unscaled: 1.1484 (1.1648) loss_bbox_0_unscaled: 0.0343
(0.0411) loss_giou_0_unscaled: 0.0657 (0.0769) cardinality_error_0_unscaled:
148.2500 (160.2419) loss_ce_1_unscaled: 0.6875 (0.7511) loss_bbox_1_unscaled:
0.0475 (0.0520) loss_giou_1_unscaled: 0.0793 (0.0886)
cardinality_error_1_unscaled: 155.2500 (150.0403) loss_ce_enc_unscaled: 1.4141
(1.4045) loss_bbox_enc_unscaled: 0.0403 (0.0449) loss_giou_enc_unscaled:
0.0736 (0.0824) cardinality_error_enc_unscaled: 277.5000 (270.9839) time:
0.3034 data: 0.0208 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.3151 (5.6003) loss_ce:
0.5430 (0.6243) loss_bbox: 0.2162 (0.2737) loss_giou: 0.1821 (0.1862)
loss_ce_0: 1.1406 (1.1595) loss_bbox_0: 0.1802 (0.2116) loss_giou_0: 0.1462
(0.1583) loss_ce_1: 0.6758 (0.7422) loss_bbox_1: 0.2159 (0.2630) loss_giou_1:
0.1733 (0.1832) loss_ce_enc: 1.3984 (1.3993) loss_bbox_enc: 0.2263 (0.2267)
loss_giou_enc: 0.1642 (0.1722) loss_ce_unscaled: 0.5430 (0.6243)
class_error_unscaled: 0.0000 (4.2211) loss_bbox_unscaled: 0.0432 (0.0547)
loss_giou_unscaled: 0.0911 (0.0931) cardinality_error_unscaled: 259.5000
(235.5461) loss_ce_0_unscaled: 1.1406 (1.1595) loss_bbox_0_unscaled: 0.0360
(0.0423) loss_giou_0_unscaled: 0.0731 (0.0791) cardinality_error_0_unscaled:
161.7500 (167.3487) loss_ce_1_unscaled: 0.6758 (0.7422) loss_bbox_1_unscaled:
0.0432 (0.0526) loss_giou_1_unscaled: 0.0867 (0.0916)
cardinality_error_1_unscaled: 156.2500 (154.8882) loss_ce_enc_unscaled: 1.3984
(1.3993) loss_bbox_enc_unscaled: 0.0453 (0.0453) loss_giou_enc_unscaled:
0.0821 (0.0861) cardinality_error_enc_unscaled: 277.5000 (271.6842) time:
0.2823 data: 0.0170 max mem: 9230
Test: Total time: 0:00:11 (0.3049 s / it)
Averaged stats: class_error: 0.00 loss: 5.3151 (5.6003) loss_ce: 0.5430
(0.6243) loss_bbox: 0.2162 (0.2737) loss_giou: 0.1821 (0.1862) loss_ce_0:
1.1406 (1.1595) loss_bbox_0: 0.1802 (0.2116) loss_giou_0: 0.1462 (0.1583)
loss_ce_1: 0.6758 (0.7422) loss_bbox_1: 0.2159 (0.2630) loss_giou_1: 0.1733
(0.1832) loss_ce_enc: 1.3984 (1.3993) loss_bbox_enc: 0.2263 (0.2267)
loss_giou_enc: 0.1642 (0.1722) loss_ce_unscaled: 0.5430 (0.6243)
class_error_unscaled: 0.0000 (4.2211) loss_bbox_unscaled: 0.0432 (0.0547)
loss_giou_unscaled: 0.0911 (0.0931) cardinality_error_unscaled: 259.5000
(235.5461) loss_ce_0_unscaled: 1.1406 (1.1595) loss_bbox_0_unscaled: 0.0360
(0.0423) loss_giou_0_unscaled: 0.0731 (0.0791) cardinality_error_0_unscaled:
161.7500 (167.3487) loss_ce_1_unscaled: 0.6758 (0.7422) loss_bbox_1_unscaled:
0.0432 (0.0526) loss_giou_1_unscaled: 0.0867 (0.0916)
cardinality_error_1_unscaled: 156.2500 (154.8882) loss_ce_enc_unscaled: 1.3984
(1.3993) loss_bbox_enc_unscaled: 0.0453 (0.0453) loss_giou_enc_unscaled:
0.0821 (0.0861) cardinality_error_enc_unscaled: 277.5000 (271.6842)
Accumulating evaluation results…
DONE (t=0.28s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.745
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.914
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.833

```
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.419
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.753
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.633
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.864
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.891
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.685
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.895
```
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [3] [0/87] eta: 0:12:23 lr: 0.000100 class_error: 23.08 loss:
5.8549 (5.8549) loss_ce: 0.5865 (0.5865) loss_bbox: 0.4181 (0.4181)
loss_giou: 0.1384 (0.1384) loss_ce_0: 1.0110 (1.0110) loss_bbox_0: 0.4104
(0.4104) loss_giou_0: 0.1336 (0.1336) loss_ce_1: 0.6708 (0.6708) loss_bbox_1:
0.4154 (0.4154) loss_giou_1: 0.1417 (0.1417) loss_ce_enc: 1.4989 (1.4989)
loss_bbox_enc: 0.3030 (0.3030) loss_giou_enc: 0.1271 (0.1271)
loss_ce_unscaled: 0.5865 (0.5865) class_error_unscaled: 23.0769 (23.0769)
loss_bbox_unscaled: 0.0836 (0.0836) loss_giou_unscaled: 0.0692 (0.0692)
cardinality_error_unscaled: 3349.7500 (3349.7500) loss_ce_0_unscaled: 1.0110
(1.0110) loss_bbox_0_unscaled: 0.0821 (0.0821) loss_giou_0_unscaled: 0.0668
(0.0668) cardinality_error_0_unscaled: 1707.7500 (1707.7500)
loss_ce_1_unscaled: 0.6708 (0.6708) loss_bbox_1_unscaled: 0.0831 (0.0831)
loss_giou_1_unscaled: 0.0709 (0.0709) cardinality_error_1_unscaled: 1962.0000
(1962.0000) loss_ce_enc_unscaled: 1.4989 (1.4989) loss_bbox_enc_unscaled:
0.0606 (0.0606) loss_giou_enc_unscaled: 0.0636 (0.0636)
cardinality_error_enc_unscaled: 3588.7500 (3588.7500) time: 8.5469 data:
1.1529 max mem: 9230
Epoch: [3] [10/87] eta: 0:09:28 lr: 0.000100 class_error: 20.00 loss:
5.8549 (6.0959) loss_ce: 0.6878 (0.6981) loss_bbox: 0.4181 (0.3560)
loss_giou: 0.2094 (0.2059) loss_ce_0: 1.1389 (1.1127) loss_bbox_0: 0.2933
(0.2944) loss_giou_0: 0.1675 (0.1870) loss_ce_1: 0.7571 (0.7757) loss_bbox_1:
0.4095 (0.3544) loss_giou_1: 0.2102 (0.2067) loss_ce_enc: 1.3999 (1.3850)
loss_bbox_enc: 0.3111 (0.3081) loss_giou_enc: 0.1625 (0.2118)
loss_ce_unscaled: 0.6878 (0.6981) class_error_unscaled: 11.5385 (12.5699)
loss_bbox_unscaled: 0.0836 (0.0712) loss_giou_unscaled: 0.1047 (0.1030)
cardinality_error_unscaled: 3349.7500 (3167.4091) loss_ce_0_unscaled: 1.1389
(1.1127) loss_bbox_0_unscaled: 0.0587 (0.0589) loss_giou_0_unscaled: 0.0838
(0.0935) cardinality_error_0_unscaled: 2120.7500 (2151.4318)
loss_ce_1_unscaled: 0.7571 (0.7757) loss_bbox_1_unscaled: 0.0819 (0.0709)
loss_giou_1_unscaled: 0.1051 (0.1034) cardinality_error_1_unscaled: 2024.7500
(2073.0000) loss_ce_enc_unscaled: 1.3999 (1.3850) loss_bbox_enc_unscaled:
0.0622 (0.0616) loss_giou_enc_unscaled: 0.0813 (0.1059)
cardinality_error_enc_unscaled: 3662.0000 (3498.7273) time: 7.3797 data:
0.1481 max mem: 9230
Epoch: [3] [20/87] eta: 0:08:08 lr: 0.000100 class_error: 0.00 loss: 5.4030
(5.7961) loss_ce: 0.5644 (0.6308) loss_bbox: 0.3027 (0.3393) loss_giou:

0.1604 (0.1873) loss_ce_0: 1.0806 (1.0832) loss_bbox_0: 0.2670 (0.2782)
loss_giou_0: 0.1496 (0.1634) loss_ce_1: 0.6593 (0.7238) loss_bbox_1: 0.3001
(0.3349) loss_giou_1: 0.1483 (0.1850) loss_ce_enc: 1.3999 (1.4002)
loss_bbox_enc: 0.2609 (0.2869) loss_giou_enc: 0.1585 (0.1831)
loss_ce_unscaled: 0.5644 (0.6308) class_error_unscaled: 1.9231 (7.6805)
loss_bbox_unscaled: 0.0605 (0.0679) loss_giou_unscaled: 0.0802 (0.0936)
cardinality_error_unscaled: 3300.2500 (3152.7381) loss_ce_0_unscaled: 1.0806
(1.0832) loss_bbox_0_unscaled: 0.0534 (0.0556) loss_giou_0_unscaled: 0.0748
(0.0817) cardinality_error_0_unscaled: 2075.0000 (1926.6071)
loss_ce_1_unscaled: 0.6593 (0.7238) loss_bbox_1_unscaled: 0.0600 (0.0670)
loss_giou_1_unscaled: 0.0742 (0.0925) cardinality_error_1_unscaled: 2024.7500
(2103.5952) loss_ce_enc_unscaled: 1.3999 (1.4002) loss_bbox_enc_unscaled:
0.0522 (0.0574) loss_giou_enc_unscaled: 0.0793 (0.0916)
cardinality_error_enc_unscaled: 3616.2500 (3463.0714) time: 7.2310 data:
0.0481 max mem: 9230
Epoch: [3] [30/87] eta: 0:06:52 lr: 0.000100 class_error: 20.00 loss:
5.8279 (5.9128) loss_ce: 0.6559 (0.6399) loss_bbox: 0.3404 (0.3542)
loss_giou: 0.1604 (0.2008) loss_ce_0: 1.0806 (1.0844) loss_bbox_0: 0.2749
(0.2953) loss_giou_0: 0.1558 (0.1798) loss_ce_1: 0.7232 (0.7373) loss_bbox_1:
0.3102 (0.3416) loss_giou_1: 0.1483 (0.1957) loss_ce_enc: 1.3872 (1.3818)
loss_bbox_enc: 0.2874 (0.3017) loss_giou_enc: 0.1638 (0.2003)
loss_ce_unscaled: 0.6559 (0.6399) class_error_unscaled: 1.0989 (7.8946)
loss_bbox_unscaled: 0.0681 (0.0708) loss_giou_unscaled: 0.0802 (0.1004)
cardinality_error_unscaled: 3393.0000 (3258.7742) loss_ce_0_unscaled: 1.0806
(1.0844) loss_bbox_0_unscaled: 0.0550 (0.0591) loss_giou_0_unscaled: 0.0779
(0.0899) cardinality_error_0_unscaled: 2130.7500 (2030.9919)
loss_ce_1_unscaled: 0.7232 (0.7373) loss_bbox_1_unscaled: 0.0620 (0.0683)
loss_giou_1_unscaled: 0.0742 (0.0979) cardinality_error_1_unscaled: 2356.2500
(2212.1129) loss_ce_enc_unscaled: 1.3872 (1.3818) loss_bbox_enc_unscaled:
0.0575 (0.0603) loss_giou_enc_unscaled: 0.0819 (0.1001)
cardinality_error_enc_unscaled: 3453.5000 (3455.9113) time: 7.1529 data:
0.0488 max mem: 9230
Epoch: [3] [40/87] eta: 0:05:37 lr: 0.000100 class_error: 0.00 loss: 5.6488
(5.8143) loss_ce: 0.6559 (0.6262) loss_bbox: 0.3404 (0.3472) loss_giou:
0.1722 (0.1934) loss_ce_0: 1.0645 (1.0683) loss_bbox_0: 0.2892 (0.2894)
loss_giou_0: 0.1569 (0.1724) loss_ce_1: 0.7256 (0.7223) loss_bbox_1: 0.3422
(0.3372) loss_giou_1: 0.1718 (0.1891) loss_ce_enc: 1.3487 (1.3745)
loss_bbox_enc: 0.3067 (0.3009) loss_giou_enc: 0.1692 (0.1934)
loss_ce_unscaled: 0.6559 (0.6262) class_error_unscaled: 1.2821 (7.1875)
loss_bbox_unscaled: 0.0681 (0.0694) loss_giou_unscaled: 0.0861 (0.0967)
cardinality_error_unscaled: 3609.5000 (3324.3963) loss_ce_0_unscaled: 1.0645
(1.0683) loss_bbox_0_unscaled: 0.0578 (0.0579) loss_giou_0_unscaled: 0.0785
(0.0862) cardinality_error_0_unscaled: 2217.2500 (2042.5183)
loss_ce_1_unscaled: 0.7256 (0.7223) loss_bbox_1_unscaled: 0.0684 (0.0674)
loss_giou_1_unscaled: 0.0859 (0.0945) cardinality_error_1_unscaled: 2473.7500
(2307.9329) loss_ce_enc_unscaled: 1.3487 (1.3745) loss_bbox_enc_unscaled:
0.0613 (0.0602) loss_giou_enc_unscaled: 0.0846 (0.0967)
cardinality_error_enc_unscaled: 3465.0000 (3449.7073) time: 7.0534 data:

0.0505 max mem: 9230
Epoch: [3] [50/87] eta: 0:04:24 lr: 0.000100 class_error: 0.00 loss: 5.4709
(5.7315) loss_ce: 0.4772 (0.6023) loss_bbox: 0.2977 (0.3428) loss_giou:
0.1722 (0.1924) loss_ce_0: 0.9634 (1.0420) loss_bbox_0: 0.2697 (0.2930)
loss_giou_0: 0.1569 (0.1743) loss_ce_1: 0.5679 (0.6956) loss_bbox_1: 0.3045
(0.3363) loss_giou_1: 0.1735 (0.1896) loss_ce_enc: 1.3322 (1.3671)
loss_bbox_enc: 0.3005 (0.3025) loss_giou_enc: 0.1715 (0.1935)
loss_ce_unscaled: 0.4772 (0.6023) class_error_unscaled: 0.0000 (6.5062)
loss_bbox_unscaled: 0.0595 (0.0686) loss_giou_unscaled: 0.0861 (0.0962)
cardinality_error_unscaled: 3683.2500 (3402.0686) loss_ce_0_unscaled: 0.9634
(1.0420) loss_bbox_0_unscaled: 0.0539 (0.0586) loss_giou_0_unscaled: 0.0785
(0.0872) cardinality_error_0_unscaled: 1968.7500 (2021.8873)
loss_ce_1_unscaled: 0.5679 (0.6956) loss_bbox_1_unscaled: 0.0609 (0.0673)
loss_giou_1_unscaled: 0.0868 (0.0948) cardinality_error_1_unscaled: 2686.0000
(2423.1422) loss_ce_enc_unscaled: 1.3322 (1.3671) loss_bbox_enc_unscaled:
0.0601 (0.0605) loss_giou_enc_unscaled: 0.0858 (0.0967)
cardinality_error_enc_unscaled: 3558.5000 (3466.4755) time: 7.0018 data:
0.0494 max mem: 9230
Epoch: [3] [60/87] eta: 0:03:12 lr: 0.000100 class_error: 0.00 loss: 5.5711
(5.7925) loss_ce: 0.5675 (0.6119) loss_bbox: 0.2977 (0.3513) loss_giou:
0.2010 (0.1976) loss_ce_0: 0.9600 (1.0431) loss_bbox_0: 0.2813 (0.3014)
loss_giou_0: 0.1671 (0.1785) loss_ce_1: 0.6620 (0.7025) loss_bbox_1: 0.3045
(0.3430) loss_giou_1: 0.1913 (0.1938) loss_ce_enc: 1.3161 (1.3592)
loss_bbox_enc: 0.3023 (0.3112) loss_giou_enc: 0.1826 (0.1988)
loss_ce_unscaled: 0.5675 (0.6119) class_error_unscaled: 0.0000 (6.4475)
loss_bbox_unscaled: 0.0595 (0.0703) loss_giou_unscaled: 0.1005 (0.0988)
cardinality_error_unscaled: 3728.7500 (3422.3648) loss_ce_0_unscaled: 0.9600
(1.0431) loss_bbox_0_unscaled: 0.0563 (0.0603) loss_giou_0_unscaled: 0.0835
(0.0892) cardinality_error_0_unscaled: 2012.7500 (2049.4262)
loss_ce_1_unscaled: 0.6620 (0.7025) loss_bbox_1_unscaled: 0.0609 (0.0686)
loss_giou_1_unscaled: 0.0957 (0.0969) cardinality_error_1_unscaled: 2917.2500
(2481.2213) loss_ce_enc_unscaled: 1.3161 (1.3592) loss_bbox_enc_unscaled:
0.0605 (0.0622) loss_giou_enc_unscaled: 0.0913 (0.0994)
cardinality_error_enc_unscaled: 3584.0000 (3456.1967) time: 7.0520 data:
0.0482 max mem: 9230
Epoch: [3] [70/87] eta: 0:02:01 lr: 0.000100 class_error: -0.00 loss:
5.3361 (5.6684) loss_ce: 0.5675 (0.5955) loss_bbox: 0.2625 (0.3347)
loss_giou: 0.1475 (0.1919) loss_ce_0: 0.9810 (1.0276) loss_bbox_0: 0.2688
(0.2929) loss_giou_0: 0.1466 (0.1758) loss_ce_1: 0.6283 (0.6827) loss_bbox_1:
0.2488 (0.3281) loss_giou_1: 0.1507 (0.1891) loss_ce_enc: 1.2855 (1.3454)
loss_bbox_enc: 0.2939 (0.3072) loss_giou_enc: 0.1826 (0.1976)
loss_ce_unscaled: 0.5675 (0.5955) class_error_unscaled: 0.0000 (6.2725)
loss_bbox_unscaled: 0.0525 (0.0669) loss_giou_unscaled: 0.0738 (0.0959)
cardinality_error_unscaled: 3487.5000 (3418.2113) loss_ce_0_unscaled: 0.9810
(1.0276) loss_bbox_0_unscaled: 0.0538 (0.0586) loss_giou_0_unscaled: 0.0733
(0.0879) cardinality_error_0_unscaled: 2191.5000 (2084.5915)
loss_ce_1_unscaled: 0.6283 (0.6827) loss_bbox_1_unscaled: 0.0498 (0.0656)
loss_giou_1_unscaled: 0.0753 (0.0945) cardinality_error_1_unscaled: 2726.0000

(2534.9155) loss_ce_enc_unscaled: 1.2855 (1.3454) loss_bbox_enc_unscaled:
0.0588 (0.0614) loss_giou_enc_unscaled: 0.0913 (0.0988)
cardinality_error_enc_unscaled: 3331.2500 (3431.8979) time: 7.1472 data:
0.0487 max mem: 9230
Epoch: [3] [80/87] eta: 0:00:50 lr: 0.000100 class_error: 20.00 loss:
5.3354 (5.6455) loss_ce: 0.5652 (0.5992) loss_bbox: 0.2625 (0.3323)
loss_giou: 0.1418 (0.1920) loss_ce_0: 0.9404 (1.0161) loss_bbox_0: 0.2576
(0.2922) loss_giou_0: 0.1466 (0.1764) loss_ce_1: 0.5941 (0.6792) loss_bbox_1:
0.2745 (0.3259) loss_giou_1: 0.1407 (0.1893) loss_ce_enc: 1.2734 (1.3348)
loss_bbox_enc: 0.2939 (0.3090) loss_giou_enc: 0.1755 (0.1988)
loss_ce_unscaled: 0.5652 (0.5992) class_error_unscaled: 0.0000 (6.4525)
loss_bbox_unscaled: 0.0525 (0.0665) loss_giou_unscaled: 0.0709 (0.0960)
cardinality_error_unscaled: 3522.7500 (3442.8827) loss_ce_0_unscaled: 0.9404
(1.0161) loss_bbox_0_unscaled: 0.0515 (0.0584) loss_giou_0_unscaled: 0.0733
(0.0882) cardinality_error_0_unscaled: 2251.7500 (2128.4167)
loss_ce_1_unscaled: 0.5941 (0.6792) loss_bbox_1_unscaled: 0.0549 (0.0652)
loss_giou_1_unscaled: 0.0704 (0.0947) cardinality_error_1_unscaled: 3005.7500
(2604.1883) loss_ce_enc_unscaled: 1.2734 (1.3348) loss_bbox_enc_unscaled:
0.0588 (0.0618) loss_giou_enc_unscaled: 0.0877 (0.0994)
cardinality_error_enc_unscaled: 3235.0000 (3416.2932) time: 7.2020 data:
0.0482 max mem: 9230
Epoch: [3] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 5.1996
(5.6122) loss_ce: 0.5652 (0.5957) loss_bbox: 0.2625 (0.3293) loss_giou:
0.1512 (0.1895) loss_ce_0: 0.9400 (1.0099) loss_bbox_0: 0.2531 (0.2917)
loss_giou_0: 0.1509 (0.1749) loss_ce_1: 0.5941 (0.6731) loss_bbox_1: 0.2752
(0.3235) loss_giou_1: 0.1470 (0.1871) loss_ce_enc: 1.2426 (1.3297)
loss_bbox_enc: 0.2954 (0.3103) loss_giou_enc: 0.1755 (0.1977)
loss_ce_unscaled: 0.5652 (0.5957) class_error_unscaled: 0.0000 (6.3385)
loss_bbox_unscaled: 0.0525 (0.0659) loss_giou_unscaled: 0.0756 (0.0947)
cardinality_error_unscaled: 3665.2500 (3451.9741) loss_ce_0_unscaled: 0.9400
(1.0099) loss_bbox_0_unscaled: 0.0506 (0.0583) loss_giou_0_unscaled: 0.0755
(0.0875) cardinality_error_0_unscaled: 2381.2500 (2162.7213)
loss_ce_1_unscaled: 0.5941 (0.6731) loss_bbox_1_unscaled: 0.0550 (0.0647)
loss_giou_1_unscaled: 0.0735 (0.0935) cardinality_error_1_unscaled: 2966.7500
(2628.1897) loss_ce_enc_unscaled: 1.2426 (1.3297) loss_bbox_enc_unscaled:
0.0591 (0.0621) loss_giou_enc_unscaled: 0.0877 (0.0988)
cardinality_error_enc_unscaled: 3235.0000 (3393.6638) time: 7.1452 data:
0.0486 max mem: 9230
Epoch: [3] Total time: 0:10:21 (7.1430 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 5.1996 (5.6122) loss_ce:
0.5652 (0.5957) loss_bbox: 0.2625 (0.3293) loss_giou: 0.1512 (0.1895)
loss_ce_0: 0.9400 (1.0099) loss_bbox_0: 0.2531 (0.2917) loss_giou_0: 0.1509
(0.1749) loss_ce_1: 0.5941 (0.6731) loss_bbox_1: 0.2752 (0.3235) loss_giou_1:
0.1470 (0.1871) loss_ce_enc: 1.2426 (1.3297) loss_bbox_enc: 0.2954 (0.3103)
loss_giou_enc: 0.1755 (0.1977) loss_ce_unscaled: 0.5652 (0.5957)
class_error_unscaled: 0.0000 (6.3385) loss_bbox_unscaled: 0.0525 (0.0659)
loss_giou_unscaled: 0.0756 (0.0947) cardinality_error_unscaled: 3665.2500
(3451.9741) loss_ce_0_unscaled: 0.9400 (1.0099) loss_bbox_0_unscaled: 0.0506

(0.0583) loss_giou_0_unscaled: 0.0755 (0.0875) cardinality_error_0_unscaled: 2381.2500 (2162.7213) loss_ce_1_unscaled: 0.5941 (0.6731) loss_bbox_1_unscaled: 0.0550 (0.0647) loss_giou_1_unscaled: 0.0735 (0.0935) cardinality_error_1_unscaled: 2966.7500 (2628.1897) loss_ce_enc_unscaled: 1.2426 (1.3297) loss_bbox_enc_unscaled: 0.0591 (0.0621) loss_giou_enc_unscaled: 0.0877 (0.0988) cardinality_error_enc_unscaled: 3235.0000 (3393.6638)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 5.3318 (5.3318) loss_ce: 0.6836 (0.6836) loss_bbox: 0.2267 (0.2267) loss_giou: 0.1480 (0.1480) loss_ce_0: 0.8789 (0.8789) loss_bbox_0: 0.2583 (0.2583) loss_giou_0: 0.1569 (0.1569) loss_ce_1: 0.5781 (0.5781) loss_bbox_1: 0.2790 (0.2790) loss_giou_1: 0.1636 (0.1636) loss_ce_enc: 1.2344 (1.2344) loss_bbox_enc: 0.4519 (0.4519) loss_giou_enc: 0.2724 (0.2724) loss_ce_unscaled: 0.6836 (0.6836) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0453 (0.0453) loss_giou_unscaled: 0.0740 (0.0740) cardinality_error_unscaled: 223.7500 (223.7500) loss_ce_0_unscaled: 0.8789 (0.8789) loss_bbox_0_unscaled: 0.0517 (0.0517) loss_giou_0_unscaled: 0.0785 (0.0785) cardinality_error_0_unscaled: 121.0000 (121.0000) loss_ce_1_unscaled: 0.5781 (0.5781) loss_bbox_1_unscaled: 0.0558 (0.0558) loss_giou_1_unscaled: 0.0818 (0.0818) cardinality_error_1_unscaled: 162.7500 (162.7500) loss_ce_enc_unscaled: 1.2344 (1.2344) loss_bbox_enc_unscaled: 0.0904 (0.0904) loss_giou_enc_unscaled: 0.1362 (0.1362) cardinality_error_enc_unscaled: 169.7500 (169.7500) time: 0.7201 data: 0.3608 max mem: 9230
Test: [10/38] eta: 0:00:08 class_error: 42.86 loss: 5.8078 (5.7697) loss_ce: 0.7070 (0.7344) loss_bbox: 0.3333 (0.3225) loss_giou: 0.2224 (0.2064) loss_ce_0: 0.9648 (0.9805) loss_bbox_0: 0.2524 (0.2666) loss_giou_0: 0.1687 (0.1844) loss_ce_1: 0.7500 (0.7525) loss_bbox_1: 0.2790 (0.2935) loss_giou_1: 0.2072 (0.1938) loss_ce_enc: 1.1953 (1.2230) loss_bbox_enc: 0.3771 (0.3625) loss_giou_enc: 0.2724 (0.2497) loss_ce_unscaled: 0.7070 (0.7344) class_error_unscaled: 0.0000 (12.3052) loss_bbox_unscaled: 0.0667 (0.0645) loss_giou_unscaled: 0.1112 (0.1032) cardinality_error_unscaled: 262.5000 (255.7273) loss_ce_0_unscaled: 0.9648 (0.9805) loss_bbox_0_unscaled: 0.0505 (0.0533) loss_giou_0_unscaled: 0.0844 (0.0922) cardinality_error_0_unscaled: 190.0000 (173.3182) loss_ce_1_unscaled: 0.7500 (0.7525) loss_bbox_1_unscaled: 0.0558 (0.0587) loss_giou_1_unscaled: 0.1036 (0.0969) cardinality_error_1_unscaled: 206.0000 (215.8182) loss_ce_enc_unscaled: 1.1953 (1.2230) loss_bbox_enc_unscaled: 0.0754 (0.0725) loss_giou_enc_unscaled: 0.1362 (0.1248) cardinality_error_enc_unscaled: 174.5000 (173.7273) time: 0.3183 data: 0.0478 max mem: 9230
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.6034 (5.6704) loss_ce: 0.6211 (0.6640) loss_bbox: 0.3333 (0.3371) loss_giou: 0.1742 (0.2019) loss_ce_0: 0.9805 (0.9914) loss_bbox_0: 0.2524 (0.2760) loss_giou_0: 0.1682 (0.1782) loss_ce_1: 0.6836 (0.6980) loss_bbox_1: 0.3067 (0.3150) loss_giou_1: 0.1856 (0.1937) loss_ce_enc: 1.1953 (1.2262) loss_bbox_enc: 0.3047 (0.3534) loss_giou_enc: 0.2117 (0.2355) loss_ce_unscaled: 0.6211 (0.6640) class_error_unscaled: 0.0000 (8.9059) loss_bbox_unscaled: 0.0667 (0.0674) loss_giou_unscaled: 0.0871 (0.1009) cardinality_error_unscaled: 255.7500 (254.0119) loss_ce_0_unscaled: 0.9805 (0.9914) loss_bbox_0_unscaled: 0.0505

(0.0552) loss_giou_0_unscaled: 0.0841 (0.0891) cardinality_error_0_unscaled: 190.0000 (182.3214) loss_ce_1_unscaled: 0.6836 (0.6980) loss_bbox_1_unscaled: 0.0613 (0.0630) loss_giou_1_unscaled: 0.0928 (0.0969) cardinality_error_1_unscaled: 213.2500 (216.3690) loss_ce_enc_unscaled: 1.1953 (1.2262) loss_bbox_enc_unscaled: 0.0609 (0.0707) loss_giou_enc_unscaled: 0.1058 (0.1178) cardinality_error_enc_unscaled: 174.5000 (178.8452) time: 0.2777 data: 0.0177 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 5.3053 (5.4631) loss_ce: 0.4883 (0.6260) loss_bbox: 0.3009 (0.3189) loss_giou: 0.1720 (0.1978) loss_ce_0: 0.9531 (0.9667) loss_bbox_0: 0.2403 (0.2601) loss_giou_0: 0.1511 (0.1751) loss_ce_1: 0.5898 (0.6649) loss_bbox_1: 0.2431 (0.2852) loss_giou_1: 0.1556 (0.1858) loss_ce_enc: 1.1797 (1.2041) loss_bbox_enc: 0.3055 (0.3429) loss_giou_enc: 0.2033 (0.2355) loss_ce_unscaled: 0.4883 (0.6260) class_error_unscaled: 0.0000 (7.1390) loss_bbox_unscaled: 0.0602 (0.0638) loss_giou_unscaled: 0.0860 (0.0989) cardinality_error_unscaled: 291.5000 (261.9516) loss_ce_0_unscaled: 0.9531 (0.9667) loss_bbox_0_unscaled: 0.0481 (0.0520) loss_giou_0_unscaled: 0.0756 (0.0875) cardinality_error_0_unscaled: 203.2500 (194.3629) loss_ce_1_unscaled: 0.5898 (0.6649) loss_bbox_1_unscaled: 0.0486 (0.0570) loss_giou_1_unscaled: 0.0778 (0.0929) cardinality_error_1_unscaled: 232.2500 (223.0242) loss_ce_enc_unscaled: 1.1797 (1.2041) loss_bbox_enc_unscaled: 0.0611 (0.0686) loss_giou_enc_unscaled: 0.1016 (0.1177) cardinality_error_enc_unscaled: 189.5000 (193.7177) time: 0.2888 data: 0.0191 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.1942 (5.4698) loss_ce: 0.5234 (0.6228) loss_bbox: 0.2467 (0.3154) loss_giou: 0.1736 (0.2022) loss_ce_0: 0.9258 (0.9671) loss_bbox_0: 0.2386 (0.2603) loss_giou_0: 0.1511 (0.1766) loss_ce_1: 0.5938 (0.6591) loss_bbox_1: 0.2431 (0.2864) loss_giou_1: 0.1657 (0.1931) loss_ce_enc: 1.1797 (1.1972) loss_bbox_enc: 0.3425 (0.3463) loss_giou_enc: 0.2331 (0.2434) loss_ce_unscaled: 0.5234 (0.6228) class_error_unscaled: 0.0000 (6.8578) loss_bbox_unscaled: 0.0493 (0.0631) loss_giou_unscaled: 0.0868 (0.1011) cardinality_error_unscaled: 292.7500 (267.4013) loss_ce_0_unscaled: 0.9258 (0.9671) loss_bbox_0_unscaled: 0.0477 (0.0521) loss_giou_0_unscaled: 0.0756 (0.0883) cardinality_error_0_unscaled: 216.2500 (200.7105) loss_ce_1_unscaled: 0.5938 (0.6591) loss_bbox_1_unscaled: 0.0486 (0.0573) loss_giou_1_unscaled: 0.0828 (0.0966) cardinality_error_1_unscaled: 241.0000 (228.6776) loss_ce_enc_unscaled: 1.1797 (1.1972) loss_bbox_enc_unscaled: 0.0685 (0.0693) loss_giou_enc_unscaled: 0.1166 (0.1217) cardinality_error_enc_unscaled: 216.2500 (197.1579) time: 0.2857 data: 0.0184 max mem: 9230
Test: Total time: 0:00:11 (0.2960 s / it)
Averaged stats: class_error: 0.00 loss: 5.1942 (5.4698) loss_ce: 0.5234 (0.6228) loss_bbox: 0.2467 (0.3154) loss_giou: 0.1736 (0.2022) loss_ce_0: 0.9258 (0.9671) loss_bbox_0: 0.2386 (0.2603) loss_giou_0: 0.1511 (0.1766) loss_ce_1: 0.5938 (0.6591) loss_bbox_1: 0.2431 (0.2864) loss_giou_1: 0.1657 (0.1931) loss_ce_enc: 1.1797 (1.1972) loss_bbox_enc: 0.3425 (0.3463) loss_giou_enc: 0.2331 (0.2434) loss_ce_unscaled: 0.5234 (0.6228) class_error_unscaled: 0.0000 (6.8578) loss_bbox_unscaled: 0.0493 (0.0631) loss_giou_unscaled: 0.0868 (0.1011) cardinality_error_unscaled: 292.7500

```
(267.4013)  loss_ce_0_unscaled: 0.9258 (0.9671)  loss_bbox_0_unscaled: 0.0477
(0.0521)  loss_giou_0_unscaled: 0.0756 (0.0883)  cardinality_error_0_unscaled:
216.2500 (200.7105)  loss_ce_1_unscaled: 0.5938 (0.6591)  loss_bbox_1_unscaled:
0.0486 (0.0573)  loss_giou_1_unscaled: 0.0828 (0.0966)
cardinality_error_1_unscaled: 241.0000 (228.6776)  loss_ce_enc_unscaled: 1.1797
(1.1972)  loss_bbox_enc_unscaled: 0.0685 (0.0693)  loss_giou_enc_unscaled:
0.1166 (0.1217)  cardinality_error_enc_unscaled: 216.2500 (197.1579)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.736
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.908
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.810
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.433
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.742
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.628
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.846
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.882
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.615
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.888
Test:  [ 0/38]  eta: 0:01:10  class_error: 0.00  loss: 5.2939 (5.2939)  loss_ce:
0.6523 (0.6523)  loss_bbox: 0.2739 (0.2739)  loss_giou: 0.1543 (0.1543)
loss_ce_0: 0.9219 (0.9219)  loss_bbox_0: 0.2392 (0.2392)  loss_giou_0: 0.1443
(0.1443)  loss_ce_1: 0.5703 (0.5703)  loss_bbox_1: 0.2964 (0.2964)  loss_giou_1:
0.1627 (0.1627)  loss_ce_enc: 1.2734 (1.2734)  loss_bbox_enc: 0.3683 (0.3683)
loss_giou_enc: 0.2367 (0.2367)  loss_ce_unscaled: 0.6523 (0.6523)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0548 (0.0548)
loss_giou_unscaled: 0.0772 (0.0772)  cardinality_error_unscaled: 212.0000
(212.0000)  loss_ce_0_unscaled: 0.9219 (0.9219)  loss_bbox_0_unscaled: 0.0478
(0.0478)  loss_giou_0_unscaled: 0.0722 (0.0722)  cardinality_error_0_unscaled:
93.7500 (93.7500)  loss_ce_1_unscaled: 0.5703 (0.5703)  loss_bbox_1_unscaled:
0.0593 (0.0593)  loss_giou_1_unscaled: 0.0813 (0.0813)
cardinality_error_1_unscaled: 137.0000 (137.0000)  loss_ce_enc_unscaled: 1.2734
(1.2734)  loss_bbox_enc_unscaled: 0.0737 (0.0737)  loss_giou_enc_unscaled:
0.1184 (0.1184)  cardinality_error_enc_unscaled: 185.7500 (185.7500)  time:
1.8445  data: 1.1295  max mem: 9230
Test:  [10/38]  eta: 0:00:11  class_error: 14.29  loss: 5.6517 (5.4914)
loss_ce: 0.6523 (0.6463)  loss_bbox: 0.2739 (0.3072)  loss_giou: 0.1973 (0.2010)
loss_ce_0: 0.9766 (0.9734)  loss_bbox_0: 0.2384 (0.2315)  loss_giou_0: 0.1443
(0.1684)  loss_ce_1: 0.6523 (0.6708)  loss_bbox_1: 0.2964 (0.2983)  loss_giou_1:
0.1971 (0.1946)  loss_ce_enc: 1.2734 (1.2656)  loss_bbox_enc: 0.3028 (0.3106)
loss_giou_enc: 0.2099 (0.2236)  loss_ce_unscaled: 0.6523 (0.6463)
class_error_unscaled: 0.0000 (4.4805)  loss_bbox_unscaled: 0.0548 (0.0614)
loss_giou_unscaled: 0.0986 (0.1005)  cardinality_error_unscaled: 253.0000
(246.3636)  loss_ce_0_unscaled: 0.9766 (0.9734)  loss_bbox_0_unscaled: 0.0477
(0.0463)  loss_giou_0_unscaled: 0.0722 (0.0842)  cardinality_error_0_unscaled:
```

173.0000 (154.2045) loss_ce_1_unscaled: 0.6523 (0.6708) loss_bbox_1_unscaled: 0.0593 (0.0597) loss_giou_1_unscaled: 0.0986 (0.0973) cardinality_error_1_unscaled: 197.5000 (202.1818) loss_ce_enc_unscaled: 1.2734 (1.2656) loss_bbox_enc_unscaled: 0.0606 (0.0621) loss_giou_enc_unscaled: 0.1050 (0.1118) cardinality_error_enc_unscaled: 200.7500 (200.2955) time: 0.4282 data: 0.1176 max mem: 9230
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 5.2907 (5.3779) loss_ce: 0.5859 (0.6056) loss_bbox: 0.2666 (0.2958) loss_giou: 0.1561 (0.1864) loss_ce_0: 0.9844 (0.9860) loss_bbox_0: 0.2342 (0.2371) loss_giou_0: 0.1387 (0.1622) loss_ce_1: 0.6289 (0.6395) loss_bbox_1: 0.2991 (0.3022) loss_giou_1: 0.1631 (0.1882) loss_ce_enc: 1.2344 (1.2731) loss_bbox_enc: 0.2749 (0.2972) loss_giou_enc: 0.1713 (0.2045) loss_ce_unscaled: 0.5859 (0.6056) class_error_unscaled: 0.0000 (3.6168) loss_bbox_unscaled: 0.0533 (0.0592) loss_giou_unscaled: 0.0780 (0.0932) cardinality_error_unscaled: 253.0000 (246.6667) loss_ce_0_unscaled: 0.9844 (0.9860) loss_bbox_0_unscaled: 0.0468 (0.0474) loss_giou_0_unscaled: 0.0694 (0.0811) cardinality_error_0_unscaled: 173.5000 (160.5476) loss_ce_1_unscaled: 0.6289 (0.6395) loss_bbox_1_unscaled: 0.0598 (0.0604) loss_giou_1_unscaled: 0.0815 (0.0941) cardinality_error_1_unscaled: 202.7500 (201.2857) loss_ce_enc_unscaled: 1.2344 (1.2731) loss_bbox_enc_unscaled: 0.0550 (0.0594) loss_giou_enc_unscaled: 0.0857 (0.1023) cardinality_error_enc_unscaled: 200.7500 (201.0119) time: 0.2871 data: 0.0174 max mem: 9230
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.8083 (5.1068) loss_ce: 0.4883 (0.5597) loss_bbox: 0.2333 (0.2617) loss_giou: 0.1441 (0.1752) loss_ce_0: 0.9375 (0.9515) loss_bbox_0: 0.1909 (0.2210) loss_giou_0: 0.1275 (0.1580) loss_ce_1: 0.5430 (0.5923) loss_bbox_1: 0.2264 (0.2705) loss_giou_1: 0.1424 (0.1788) loss_ce_enc: 1.2344 (1.2566) loss_bbox_enc: 0.2438 (0.2810) loss_giou_enc: 0.1736 (0.2007) loss_ce_unscaled: 0.4883 (0.5597) class_error_unscaled: 0.0000 (2.7433) loss_bbox_unscaled: 0.0467 (0.0523) loss_giou_unscaled: 0.0721 (0.0876) cardinality_error_unscaled: 283.0000 (256.1935) loss_ce_0_unscaled: 0.9375 (0.9515) loss_bbox_0_unscaled: 0.0382 (0.0442) loss_giou_0_unscaled: 0.0637 (0.0790) cardinality_error_0_unscaled: 173.5000 (167.4355) loss_ce_1_unscaled: 0.5430 (0.5923) loss_bbox_1_unscaled: 0.0453 (0.0541) loss_giou_1_unscaled: 0.0712 (0.0894) cardinality_error_1_unscaled: 208.5000 (206.1290) loss_ce_enc_unscaled: 1.2344 (1.2566) loss_bbox_enc_unscaled: 0.0488 (0.0562) loss_giou_enc_unscaled: 0.0868 (0.1003) cardinality_error_enc_unscaled: 231.7500 (215.9194) time: 0.3042 data: 0.0199 max mem: 9230
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.8083 (5.1551) loss_ce: 0.5234 (0.5643) loss_bbox: 0.2333 (0.2653) loss_giou: 0.1602 (0.1816) loss_ce_0: 0.9375 (0.9607) loss_bbox_0: 0.2177 (0.2268) loss_giou_0: 0.1612 (0.1620) loss_ce_1: 0.5469 (0.5912) loss_bbox_1: 0.2429 (0.2756) loss_giou_1: 0.1702 (0.1875) loss_ce_enc: 1.2344 (1.2527) loss_bbox_enc: 0.2436 (0.2826) loss_giou_enc: 0.1915 (0.2048) loss_ce_unscaled: 0.5234 (0.5643) class_error_unscaled: 0.0000 (2.9429) loss_bbox_unscaled: 0.0467 (0.0531) loss_giou_unscaled: 0.0801 (0.0908) cardinality_error_unscaled: 290.2500 (261.6118) loss_ce_0_unscaled: 0.9375 (0.9607) loss_bbox_0_unscaled: 0.0435 (0.0454) loss_giou_0_unscaled: 0.0806 (0.0810) cardinality_error_0_unscaled:

174.2500 (175.3158) loss_ce_1_unscaled: 0.5469 (0.5912) loss_bbox_1_unscaled:
0.0486 (0.0551) loss_giou_1_unscaled: 0.0851 (0.0938)
cardinality_error_1_unscaled: 209.0000 (211.2895) loss_ce_enc_unscaled: 1.2344
(1.2527) loss_bbox_enc_unscaled: 0.0487 (0.0565) loss_giou_enc_unscaled:
0.0958 (0.1024) cardinality_error_enc_unscaled: 235.5000 (220.3421) time:
0.2986 data: 0.0191 max mem: 9230
Test: Total time: 0:00:12 (0.3370 s / it)
Averaged stats: class_error: 0.00 loss: 4.8083 (5.1551) loss_ce: 0.5234
(0.5643) loss_bbox: 0.2333 (0.2653) loss_giou: 0.1602 (0.1816) loss_ce_0:
0.9375 (0.9607) loss_bbox_0: 0.2177 (0.2268) loss_giou_0: 0.1612 (0.1620)
loss_ce_1: 0.5469 (0.5912) loss_bbox_1: 0.2429 (0.2756) loss_giou_1: 0.1702
(0.1875) loss_ce_enc: 1.2344 (1.2527) loss_bbox_enc: 0.2436 (0.2826)
loss_giou_enc: 0.1915 (0.2048) loss_ce_unscaled: 0.5234 (0.5643)
class_error_unscaled: 0.0000 (2.9429) loss_bbox_unscaled: 0.0467 (0.0531)
loss_giou_unscaled: 0.0801 (0.0908) cardinality_error_unscaled: 290.2500
(261.6118) loss_ce_0_unscaled: 0.9375 (0.9607) loss_bbox_0_unscaled: 0.0435
(0.0454) loss_giou_0_unscaled: 0.0806 (0.0810) cardinality_error_0_unscaled:
174.2500 (175.3158) loss_ce_1_unscaled: 0.5469 (0.5912) loss_bbox_1_unscaled:
0.0486 (0.0551) loss_giou_1_unscaled: 0.0851 (0.0938)
cardinality_error_1_unscaled: 209.0000 (211.2895) loss_ce_enc_unscaled: 1.2344
(1.2527) loss_bbox_enc_unscaled: 0.0487 (0.0565) loss_giou_enc_unscaled:
0.0958 (0.1024) cardinality_error_enc_unscaled: 235.5000 (220.3421)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.787
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.942
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.871
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.463
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.795
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.648
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.868
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.900
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.632
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.906
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [4] [0/87] eta: 0:12:17 lr: 0.000100 class_error: 0.00 loss: 5.1435
(5.1435) loss_ce: 0.4797 (0.4797) loss_bbox: 0.2876 (0.2876) loss_giou:
0.2531 (0.2531) loss_ce_0: 0.7236 (0.7236) loss_bbox_0: 0.3181 (0.3181)
loss_giou_0: 0.2731 (0.2731) loss_ce_1: 0.5050 (0.5050) loss_bbox_1: 0.2832
(0.2832) loss_giou_1: 0.2483 (0.2483) loss_ce_enc: 1.0544 (1.0544)
loss_bbox_enc: 0.4017 (0.4017) loss_giou_enc: 0.3157 (0.3157)
loss_ce_unscaled: 0.4797 (0.4797) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0575 (0.0575) loss_giou_unscaled: 0.1265 (0.1265)

cardinality_error_unscaled: 3853.2500 (3853.2500) loss_ce_0_unscaled: 0.7236
(0.7236) loss_bbox_0_unscaled: 0.0636 (0.0636) loss_giou_0_unscaled: 0.1366
(0.1366) cardinality_error_0_unscaled: 2497.2500 (2497.2500)
loss_ce_1_unscaled: 0.5050 (0.5050) loss_bbox_1_unscaled: 0.0566 (0.0566)
loss_giou_1_unscaled: 0.1241 (0.1241) cardinality_error_1_unscaled: 3081.0000
(3081.0000) loss_ce_enc_unscaled: 1.0544 (1.0544) loss_bbox_enc_unscaled:
0.0803 (0.0803) loss_giou_enc_unscaled: 0.1578 (0.1578)
cardinality_error_enc_unscaled: 3511.5000 (3511.5000) time: 8.4788 data:
1.0627 max mem: 9230
Epoch: [4] [10/87] eta: 0:09:08 lr: 0.000100 class_error: -0.00 loss:
5.1435 (5.1705) loss_ce: 0.5183 (0.5290) loss_bbox: 0.2624 (0.2831)
loss_giou: 0.1483 (0.1758) loss_ce_0: 0.8824 (0.8695) loss_bbox_0: 0.2854
(0.2856) loss_giou_0: 0.1531 (0.1780) loss_ce_1: 0.5680 (0.5886) loss_bbox_1:
0.2826 (0.2760) loss_giou_1: 0.1482 (0.1696) loss_ce_enc: 1.2535 (1.2242)
loss_bbox_enc: 0.3665 (0.3695) loss_giou_enc: 0.1926 (0.2214)
loss_ce_unscaled: 0.5183 (0.5290) class_error_unscaled: 0.0000 (4.4456)
loss_bbox_unscaled: 0.0525 (0.0566) loss_giou_unscaled: 0.0742 (0.0879)
cardinality_error_unscaled: 3783.7500 (3682.2500) loss_ce_0_unscaled: 0.8824
(0.8695) loss_bbox_0_unscaled: 0.0571 (0.0571) loss_giou_0_unscaled: 0.0766
(0.0890) cardinality_error_0_unscaled: 2497.2500 (2519.2500)
loss_ce_1_unscaled: 0.5680 (0.5886) loss_bbox_1_unscaled: 0.0565 (0.0552)
loss_giou_1_unscaled: 0.0741 (0.0848) cardinality_error_1_unscaled: 3169.7500
(3145.8864) loss_ce_enc_unscaled: 1.2535 (1.2242) loss_bbox_enc_unscaled:
0.0733 (0.0739) loss_giou_enc_unscaled: 0.0963 (0.1107)
cardinality_error_enc_unscaled: 3359.7500 (3287.3864) time: 7.1279 data:
0.1413 max mem: 9230
Epoch: [4] [20/87] eta: 0:07:56 lr: 0.000100 class_error: -0.00 loss:
5.2027 (5.1864) loss_ce: 0.5183 (0.5286) loss_bbox: 0.2829 (0.2885)
loss_giou: 0.1840 (0.1863) loss_ce_0: 0.8703 (0.8655) loss_bbox_0: 0.2921
(0.2917) loss_giou_0: 0.1894 (0.1889) loss_ce_1: 0.5731 (0.5799) loss_bbox_1:
0.2920 (0.2824) loss_giou_1: 0.1792 (0.1823) loss_ce_enc: 1.2003 (1.1969)
loss_bbox_enc: 0.3590 (0.3667) loss_giou_enc: 0.2100 (0.2286)
loss_ce_unscaled: 0.5183 (0.5286) class_error_unscaled: 0.0000 (4.2844)
loss_bbox_unscaled: 0.0566 (0.0577) loss_giou_unscaled: 0.0920 (0.0932)
cardinality_error_unscaled: 3783.7500 (3677.2976) loss_ce_0_unscaled: 0.8703
(0.8655) loss_bbox_0_unscaled: 0.0584 (0.0583) loss_giou_0_unscaled: 0.0947
(0.0945) cardinality_error_0_unscaled: 2677.5000 (2653.7143)
loss_ce_1_unscaled: 0.5731 (0.5799) loss_bbox_1_unscaled: 0.0584 (0.0565)
loss_giou_1_unscaled: 0.0896 (0.0912) cardinality_error_1_unscaled: 3269.2500
(3191.5476) loss_ce_enc_unscaled: 1.2003 (1.1969) loss_bbox_enc_unscaled:
0.0718 (0.0733) loss_giou_enc_unscaled: 0.1050 (0.1143)
cardinality_error_enc_unscaled: 3359.7500 (3279.6310) time: 7.0490 data:
0.0492 max mem: 9230
Epoch: [4] [30/87] eta: 0:06:47 lr: 0.000100 class_error: 0.00 loss: 5.1468
(5.1368) loss_ce: 0.4407 (0.5086) loss_bbox: 0.2895 (0.2938) loss_giou:
0.1573 (0.1837) loss_ce_0: 0.8501 (0.8491) loss_bbox_0: 0.3007 (0.3015)
loss_giou_0: 0.1682 (0.1866) loss_ce_1: 0.4991 (0.5552) loss_bbox_1: 0.2920
(0.2906) loss_giou_1: 0.1747 (0.1815) loss_ce_enc: 1.1502 (1.1809)

loss_bbox_enc: 0.3559 (0.3758) loss_giou_enc: 0.2100 (0.2294)
loss_ce_unscaled: 0.4407 (0.5086) class_error_unscaled: 0.0000 (3.8639)
loss_bbox_unscaled: 0.0579 (0.0588) loss_giou_unscaled: 0.0786 (0.0918)
cardinality_error_unscaled: 3816.2500 (3608.8468) loss_ce_0_unscaled: 0.8501
(0.8491) loss_bbox_0_unscaled: 0.0601 (0.0603) loss_giou_0_unscaled: 0.0841
(0.0933) cardinality_error_0_unscaled: 2600.7500 (2598.0565)
loss_ce_1_unscaled: 0.4991 (0.5552) loss_bbox_1_unscaled: 0.0584 (0.0581)
loss_giou_1_unscaled: 0.0873 (0.0908) cardinality_error_1_unscaled: 3230.7500
(3111.3306) loss_ce_enc_unscaled: 1.1502 (1.1809) loss_bbox_enc_unscaled:
0.0712 (0.0752) loss_giou_enc_unscaled: 0.1050 (0.1147)
cardinality_error_enc_unscaled: 3137.5000 (3145.1452) time: 7.1491 data:
0.0493 max mem: 9230
Epoch: [4] [40/87] eta: 0:05:34 lr: 0.000100 class_error: 0.00 loss: 4.5569
(5.0047) loss_ce: 0.3888 (0.4872) loss_bbox: 0.2525 (0.2852) loss_giou:
0.1451 (0.1749) loss_ce_0: 0.7705 (0.8265) loss_bbox_0: 0.2894 (0.2943)
loss_giou_0: 0.1497 (0.1788) loss_ce_1: 0.4256 (0.5330) loss_bbox_1: 0.2684
(0.2841) loss_giou_1: 0.1445 (0.1734) loss_ce_enc: 1.1247 (1.1657)
loss_bbox_enc: 0.3605 (0.3761) loss_giou_enc: 0.1984 (0.2255)
loss_ce_unscaled: 0.3888 (0.4872) class_error_unscaled: 0.0000 (4.0793)
loss_bbox_unscaled: 0.0505 (0.0570) loss_giou_unscaled: 0.0726 (0.0875)
cardinality_error_unscaled: 3810.2500 (3634.2744) loss_ce_0_unscaled: 0.7705
(0.8265) loss_bbox_0_unscaled: 0.0579 (0.0589) loss_giou_0_unscaled: 0.0748
(0.0894) cardinality_error_0_unscaled: 2426.0000 (2655.6341)
loss_ce_1_unscaled: 0.4256 (0.5330) loss_bbox_1_unscaled: 0.0537 (0.0568)
loss_giou_1_unscaled: 0.0723 (0.0867) cardinality_error_1_unscaled: 3317.2500
(3185.5305) loss_ce_enc_unscaled: 1.1247 (1.1657) loss_bbox_enc_unscaled:
0.0721 (0.0752) loss_giou_enc_unscaled: 0.0992 (0.1127)
cardinality_error_enc_unscaled: 2874.0000 (3109.3963) time: 7.1266 data:
0.0484 max mem: 9230
Epoch: [4] [50/87] eta: 0:04:23 lr: 0.000100 class_error: 6.99 loss: 4.5640
(4.9632) loss_ce: 0.3959 (0.4836) loss_bbox: 0.2525 (0.2856) loss_giou:
0.1496 (0.1755) loss_ce_0: 0.7414 (0.8111) loss_bbox_0: 0.2652 (0.2907)
loss_giou_0: 0.1520 (0.1775) loss_ce_1: 0.4256 (0.5250) loss_bbox_1: 0.2548
(0.2810) loss_giou_1: 0.1368 (0.1728) loss_ce_enc: 1.0888 (1.1457)
loss_bbox_enc: 0.3932 (0.3846) loss_giou_enc: 0.2245 (0.2300)
loss_ce_unscaled: 0.3959 (0.4836) class_error_unscaled: 0.0000 (3.4166)
loss_bbox_unscaled: 0.0505 (0.0571) loss_giou_unscaled: 0.0748 (0.0877)
cardinality_error_unscaled: 3830.0000 (3606.6912) loss_ce_0_unscaled: 0.7414
(0.8111) loss_bbox_0_unscaled: 0.0530 (0.0581) loss_giou_0_unscaled: 0.0760
(0.0888) cardinality_error_0_unscaled: 3027.2500 (2699.5588)
loss_ce_1_unscaled: 0.4256 (0.5250) loss_bbox_1_unscaled: 0.0510 (0.0562)
loss_giou_1_unscaled: 0.0684 (0.0864) cardinality_error_1_unscaled: 3563.2500
(3204.1275) loss_ce_enc_unscaled: 1.0888 (1.1457) loss_bbox_enc_unscaled:
0.0786 (0.0769) loss_giou_enc_unscaled: 0.1123 (0.1150)
cardinality_error_enc_unscaled: 2904.0000 (3029.6471) time: 7.0788 data:
0.0473 max mem: 9230
Epoch: [4] [60/87] eta: 0:03:11 lr: 0.000100 class_error: 0.00 loss: 4.5095
(4.8895) loss_ce: 0.3959 (0.4700) loss_bbox: 0.2656 (0.2840) loss_giou:

0.1506 (0.1727) loss_ce_0: 0.7507 (0.7997) loss_bbox_0: 0.2724 (0.2876)
loss_giou_0: 0.1559 (0.1736) loss_ce_1: 0.4150 (0.5079) loss_bbox_1: 0.2389
(0.2781) loss_giou_1: 0.1522 (0.1698) loss_ce_enc: 1.0398 (1.1326)
loss_bbox_enc: 0.4033 (0.3855) loss_giou_enc: 0.2134 (0.2279)
loss_ce_unscaled: 0.3959 (0.4700) class_error_unscaled: 0.0000 (3.0614)
loss_bbox_unscaled: 0.0531 (0.0568) loss_giou_unscaled: 0.0753 (0.0864)
cardinality_error_unscaled: 3830.0000 (3581.2254) loss_ce_0_unscaled: 0.7507
(0.7997) loss_bbox_0_unscaled: 0.0545 (0.0575) loss_giou_0_unscaled: 0.0779
(0.0868) cardinality_error_0_unscaled: 2856.2500 (2718.0902)
loss_ce_1_unscaled: 0.4150 (0.5079) loss_bbox_1_unscaled: 0.0478 (0.0556)
loss_giou_1_unscaled: 0.0761 (0.0849) cardinality_error_1_unscaled: 3563.2500
(3208.5779) loss_ce_enc_unscaled: 1.0398 (1.1326) loss_bbox_enc_unscaled:
0.0807 (0.0771) loss_giou_enc_unscaled: 0.1067 (0.1140)
cardinality_error_enc_unscaled: 2796.7500 (2977.1967) time: 7.0882 data:
0.0479 max mem: 9230
Epoch: [4] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 0.00 loss: 4.7206
(4.9479) loss_ce: 0.4200 (0.4716) loss_bbox: 0.2849 (0.2940) loss_giou:
0.1601 (0.1772) loss_ce_0: 0.7639 (0.7926) loss_bbox_0: 0.3080 (0.2986)
loss_giou_0: 0.1596 (0.1777) loss_ce_1: 0.4438 (0.5079) loss_bbox_1: 0.2860
(0.2897) loss_giou_1: 0.1579 (0.1747) loss_ce_enc: 1.0398 (1.1221)
loss_bbox_enc: 0.4432 (0.4049) loss_giou_enc: 0.2380 (0.2371)
loss_ce_unscaled: 0.4200 (0.4716) class_error_unscaled: 0.0000 (3.3344)
loss_bbox_unscaled: 0.0570 (0.0588) loss_giou_unscaled: 0.0800 (0.0886)
cardinality_error_unscaled: 3710.0000 (3560.4120) loss_ce_0_unscaled: 0.7639
(0.7926) loss_bbox_0_unscaled: 0.0616 (0.0597) loss_giou_0_unscaled: 0.0798
(0.0888) cardinality_error_0_unscaled: 2597.5000 (2705.3556)
loss_ce_1_unscaled: 0.4438 (0.5079) loss_bbox_1_unscaled: 0.0572 (0.0579)
loss_giou_1_unscaled: 0.0789 (0.0874) cardinality_error_1_unscaled: 3061.2500
(3189.7711) loss_ce_enc_unscaled: 1.0398 (1.1221) loss_bbox_enc_unscaled:
0.0886 (0.0810) loss_giou_enc_unscaled: 0.1190 (0.1186)
cardinality_error_enc_unscaled: 2774.2500 (2931.5563) time: 7.0670 data:
0.0496 max mem: 9284
Epoch: [4] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss: 4.8555
(4.9160) loss_ce: 0.4335 (0.4676) loss_bbox: 0.2886 (0.2901) loss_giou:
0.1819 (0.1771) loss_ce_0: 0.7267 (0.7832) loss_bbox_0: 0.3030 (0.2973)
loss_giou_0: 0.1881 (0.1793) loss_ce_1: 0.4693 (0.5041) loss_bbox_1: 0.2988
(0.2872) loss_giou_1: 0.1800 (0.1753) loss_ce_enc: 0.9931 (1.1042)
loss_bbox_enc: 0.4687 (0.4099) loss_giou_enc: 0.2592 (0.2407)
loss_ce_unscaled: 0.4335 (0.4676) class_error_unscaled: 0.0000 (3.5401)
loss_bbox_unscaled: 0.0577 (0.0580) loss_giou_unscaled: 0.0910 (0.0885)
cardinality_error_unscaled: 3764.5000 (3583.1574) loss_ce_0_unscaled: 0.7267
(0.7832) loss_bbox_0_unscaled: 0.0606 (0.0595) loss_giou_0_unscaled: 0.0940
(0.0896) cardinality_error_0_unscaled: 2832.7500 (2742.3025)
loss_ce_1_unscaled: 0.4693 (0.5041) loss_bbox_1_unscaled: 0.0598 (0.0574)
loss_giou_1_unscaled: 0.0900 (0.0876) cardinality_error_1_unscaled: 3372.5000
(3228.7778) loss_ce_enc_unscaled: 0.9931 (1.1042) loss_bbox_enc_unscaled:
0.0937 (0.0820) loss_giou_enc_unscaled: 0.1296 (0.1203)
cardinality_error_enc_unscaled: 3075.7500 (2948.7562) time: 7.1208 data:

0.0500 max mem: 9284
Epoch: [4] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 4.8817
(4.8998) loss_ce: 0.3931 (0.4600) loss_bbox: 0.2886 (0.2927) loss_giou:
0.1819 (0.1766) loss_ce_0: 0.6912 (0.7740) loss_bbox_0: 0.3030 (0.3008)
loss_giou_0: 0.1881 (0.1791) loss_ce_1: 0.4498 (0.4974) loss_bbox_1: 0.3061
(0.2905) loss_giou_1: 0.1898 (0.1753) loss_ce_enc: 0.9757 (1.0970)
loss_bbox_enc: 0.4621 (0.4156) loss_giou_enc: 0.2534 (0.2408)
loss_ce_unscaled: 0.3931 (0.4600) class_error_unscaled: 0.0000 (3.2959)
loss_bbox_unscaled: 0.0577 (0.0585) loss_giou_unscaled: 0.0910 (0.0883)
cardinality_error_unscaled: 3849.7500 (3591.7557) loss_ce_0_unscaled: 0.6912
(0.7740) loss_bbox_0_unscaled: 0.0606 (0.0602) loss_giou_0_unscaled: 0.0940
(0.0896) cardinality_error_0_unscaled: 2923.7500 (2741.0144)
loss_ce_1_unscaled: 0.4498 (0.4974) loss_bbox_1_unscaled: 0.0612 (0.0581)
loss_giou_1_unscaled: 0.0949 (0.0876) cardinality_error_1_unscaled: 3623.5000
(3242.7960) loss_ce_enc_unscaled: 0.9757 (1.0970) loss_bbox_enc_unscaled:
0.0924 (0.0831) loss_giou_enc_unscaled: 0.1267 (0.1204)
cardinality_error_enc_unscaled: 3078.5000 (2931.5977) time: 7.1810 data:
0.0495 max mem: 9284
Epoch: [4] Total time: 0:10:19 (7.1172 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 4.8817 (4.8998) loss_ce:
0.3931 (0.4600) loss_bbox: 0.2886 (0.2927) loss_giou: 0.1819 (0.1766)
loss_ce_0: 0.6912 (0.7740) loss_bbox_0: 0.3030 (0.3008) loss_giou_0: 0.1881
(0.1791) loss_ce_1: 0.4498 (0.4974) loss_bbox_1: 0.3061 (0.2905) loss_giou_1:
0.1898 (0.1753) loss_ce_enc: 0.9757 (1.0970) loss_bbox_enc: 0.4621 (0.4156)
loss_giou_enc: 0.2534 (0.2408) loss_ce_unscaled: 0.3931 (0.4600)
class_error_unscaled: 0.0000 (3.2959) loss_bbox_unscaled: 0.0577 (0.0585)
loss_giou_unscaled: 0.0910 (0.0883) cardinality_error_unscaled: 3849.7500
(3591.7557) loss_ce_0_unscaled: 0.6912 (0.7740) loss_bbox_0_unscaled: 0.0606
(0.0602) loss_giou_0_unscaled: 0.0940 (0.0896) cardinality_error_0_unscaled:
2923.7500 (2741.0144) loss_ce_1_unscaled: 0.4498 (0.4974)
loss_bbox_1_unscaled: 0.0612 (0.0581) loss_giou_1_unscaled: 0.0949 (0.0876)
cardinality_error_1_unscaled: 3623.5000 (3242.7960) loss_ce_enc_unscaled:
0.9757 (1.0970) loss_bbox_enc_unscaled: 0.0924 (0.0831)
loss_giou_enc_unscaled: 0.1267 (0.1204) cardinality_error_enc_unscaled:
3078.5000 (2931.5977)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 4.3745 (4.3745) loss_ce:
0.5586 (0.5586) loss_bbox: 0.1966 (0.1966) loss_giou: 0.1218 (0.1218)
loss_ce_0: 0.6367 (0.6367) loss_bbox_0: 0.1938 (0.1938) loss_giou_0: 0.1138
(0.1138) loss_ce_1: 0.4570 (0.4570) loss_bbox_1: 0.1964 (0.1964) loss_giou_1:
0.1122 (0.1122) loss_ce_enc: 1.0938 (1.0938) loss_bbox_enc: 0.4335 (0.4335)
loss_giou_enc: 0.2603 (0.2603) loss_ce_unscaled: 0.5586 (0.5586)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0393 (0.0393)
loss_giou_unscaled: 0.0609 (0.0609) cardinality_error_unscaled: 224.0000
(224.0000) loss_ce_0_unscaled: 0.6367 (0.6367) loss_bbox_0_unscaled: 0.0388
(0.0388) loss_giou_0_unscaled: 0.0569 (0.0569) cardinality_error_0_unscaled:
132.7500 (132.7500) loss_ce_1_unscaled: 0.4570 (0.4570) loss_bbox_1_unscaled:
0.0393 (0.0393) loss_giou_1_unscaled: 0.0561 (0.0561)
cardinality_error_1_unscaled: 186.5000 (186.5000) loss_ce_enc_unscaled: 1.0938

(1.0938) loss_bbox_enc_unscaled: 0.0867 (0.0867) loss_giou_enc_unscaled: 0.1302 (0.1302) cardinality_error_enc_unscaled: 126.7500 (126.7500) time: 0.7166 data: 0.3418 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 42.86 loss: 5.3552 (5.4618) loss_ce: 0.5742 (0.6286) loss_bbox: 0.3261 (0.3497) loss_giou: 0.2043 (0.2207) loss_ce_0: 0.7695 (0.7933) loss_bbox_0: 0.3026 (0.2972) loss_giou_0: 0.1937 (0.1956) loss_ce_1: 0.6367 (0.6147) loss_bbox_1: 0.3127 (0.3405) loss_giou_1: 0.1990 (0.2113) loss_ce_enc: 1.0781 (1.0362) loss_bbox_enc: 0.4864 (0.4646) loss_giou_enc: 0.2660 (0.3096) loss_ce_unscaled: 0.5742 (0.6286) class_error_unscaled: 0.0000 (5.9416) loss_bbox_unscaled: 0.0652 (0.0699) loss_giou_unscaled: 0.1021 (0.1103) cardinality_error_unscaled: 275.2500 (264.4773) loss_ce_0_unscaled: 0.7695 (0.7933) loss_bbox_0_unscaled: 0.0605 (0.0594) loss_giou_0_unscaled: 0.0968 (0.0978) cardinality_error_0_unscaled: 192.5000 (179.9318) loss_ce_1_unscaled: 0.6367 (0.6147) loss_bbox_1_unscaled: 0.0625 (0.0681) loss_giou_1_unscaled: 0.0995 (0.1056) cardinality_error_1_unscaled: 231.2500 (239.0909) loss_ce_enc_unscaled: 1.0781 (1.0362) loss_bbox_enc_unscaled: 0.0973 (0.0929) loss_giou_enc_unscaled: 0.1330 (0.1548) cardinality_error_enc_unscaled: 133.2500 (142.8409) time: 0.3393 data: 0.0514 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 9.09 loss: 5.3552 (5.3189) loss_ce: 0.5977 (0.6181) loss_bbox: 0.2751 (0.3303) loss_giou: 0.1691 (0.2010) loss_ce_0: 0.7852 (0.7803) loss_bbox_0: 0.3026 (0.3070) loss_giou_0: 0.1784 (0.1905) loss_ce_1: 0.5938 (0.6022) loss_bbox_1: 0.3127 (0.3239) loss_giou_1: 0.1614 (0.1962) loss_ce_enc: 1.0156 (1.0432) loss_bbox_enc: 0.4226 (0.4415) loss_giou_enc: 0.2660 (0.2846) loss_ce_unscaled: 0.5977 (0.6181) class_error_unscaled: 0.0000 (7.9896) loss_bbox_unscaled: 0.0550 (0.0661) loss_giou_unscaled: 0.0846 (0.1005) cardinality_error_unscaled: 275.2500 (260.9881) loss_ce_0_unscaled: 0.7852 (0.7803) loss_bbox_0_unscaled: 0.0605 (0.0614) loss_giou_0_unscaled: 0.0892 (0.0952) cardinality_error_0_unscaled: 211.0000 (186.3929) loss_ce_1_unscaled: 0.5938 (0.6022) loss_bbox_1_unscaled: 0.0625 (0.0648) loss_giou_1_unscaled: 0.0807 (0.0981) cardinality_error_1_unscaled: 231.2500 (235.4405) loss_ce_enc_unscaled: 1.0156 (1.0432) loss_bbox_enc_unscaled: 0.0845 (0.0883) loss_giou_enc_unscaled: 0.1330 (0.1423) cardinality_error_enc_unscaled: 136.5000 (144.2024) time: 0.2914 data: 0.0206 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.9380 (5.1589) loss_ce: 0.5898 (0.5863) loss_bbox: 0.2504 (0.3063) loss_giou: 0.1516 (0.1985) loss_ce_0: 0.7617 (0.7572) loss_bbox_0: 0.2198 (0.2847) loss_giou_0: 0.1725 (0.1902) loss_ce_1: 0.5039 (0.5772) loss_bbox_1: 0.2200 (0.3084) loss_giou_1: 0.1482 (0.1990) loss_ce_enc: 0.9844 (1.0227) loss_bbox_enc: 0.4203 (0.4376) loss_giou_enc: 0.2587 (0.2909) loss_ce_unscaled: 0.5898 (0.5863) class_error_unscaled: 0.0000 (7.4116) loss_bbox_unscaled: 0.0501 (0.0613) loss_giou_unscaled: 0.0758 (0.0993) cardinality_error_unscaled: 291.0000 (267.1613) loss_ce_0_unscaled: 0.7617 (0.7572) loss_bbox_0_unscaled: 0.0440 (0.0569) loss_giou_0_unscaled: 0.0862 (0.0951) cardinality_error_0_unscaled: 212.7500 (196.1371) loss_ce_1_unscaled: 0.5039 (0.5772) loss_bbox_1_unscaled: 0.0440 (0.0617) loss_giou_1_unscaled: 0.0741 (0.0995) cardinality_error_1_unscaled: 261.0000 (241.4194) loss_ce_enc_unscaled: 0.9844

(1.0227) loss_bbox_enc_unscaled: 0.0841 (0.0875) loss_giou_enc_unscaled:
0.1294 (0.1454) cardinality_error_enc_unscaled: 162.2500 (154.4677) time:
0.2802 data: 0.0181 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 5.0960 (5.2540) loss_ce:
0.5117 (0.6084) loss_bbox: 0.2710 (0.3082) loss_giou: 0.1981 (0.2047)
loss_ce_0: 0.7266 (0.7679) loss_bbox_0: 0.2682 (0.2913) loss_giou_0: 0.2068
(0.1989) loss_ce_1: 0.5039 (0.6002) loss_bbox_1: 0.2375 (0.3119) loss_giou_1:
0.1822 (0.2065) loss_ce_enc: 0.9492 (1.0155) loss_bbox_enc: 0.4358 (0.4439)
loss_giou_enc: 0.2751 (0.2966) loss_ce_unscaled: 0.5117 (0.6084)
class_error_unscaled: 0.0000 (8.5651) loss_bbox_unscaled: 0.0542 (0.0616)
loss_giou_unscaled: 0.0991 (0.1024) cardinality_error_unscaled: 294.0000
(272.1645) loss_ce_0_unscaled: 0.7266 (0.7679) loss_bbox_0_unscaled: 0.0536
(0.0583) loss_giou_0_unscaled: 0.1034 (0.0995) cardinality_error_0_unscaled:
225.5000 (204.1842) loss_ce_1_unscaled: 0.5039 (0.6002) loss_bbox_1_unscaled:
0.0475 (0.0624) loss_giou_1_unscaled: 0.0911 (0.1032)
cardinality_error_1_unscaled: 267.2500 (247.7566) loss_ce_enc_unscaled: 0.9492
(1.0155) loss_bbox_enc_unscaled: 0.0872 (0.0888) loss_giou_enc_unscaled:
0.1375 (0.1483) cardinality_error_enc_unscaled: 168.5000 (161.4539) time:
0.2711 data: 0.0168 max mem: 9284
Test: Total time: 0:00:11 (0.2952 s / it)
Averaged stats: class_error: 0.00 loss: 5.0960 (5.2540) loss_ce: 0.5117
(0.6084) loss_bbox: 0.2710 (0.3082) loss_giou: 0.1981 (0.2047) loss_ce_0:
0.7266 (0.7679) loss_bbox_0: 0.2682 (0.2913) loss_giou_0: 0.2068 (0.1989)
loss_ce_1: 0.5039 (0.6002) loss_bbox_1: 0.2375 (0.3119) loss_giou_1: 0.1822
(0.2065) loss_ce_enc: 0.9492 (1.0155) loss_bbox_enc: 0.4358 (0.4439)
loss_giou_enc: 0.2751 (0.2966) loss_ce_unscaled: 0.5117 (0.6084)
class_error_unscaled: 0.0000 (8.5651) loss_bbox_unscaled: 0.0542 (0.0616)
loss_giou_unscaled: 0.0991 (0.1024) cardinality_error_unscaled: 294.0000
(272.1645) loss_ce_0_unscaled: 0.7266 (0.7679) loss_bbox_0_unscaled: 0.0536
(0.0583) loss_giou_0_unscaled: 0.1034 (0.0995) cardinality_error_0_unscaled:
225.5000 (204.1842) loss_ce_1_unscaled: 0.5039 (0.6002) loss_bbox_1_unscaled:
0.0475 (0.0624) loss_giou_1_unscaled: 0.0911 (0.1032)
cardinality_error_1_unscaled: 267.2500 (247.7566) loss_ce_enc_unscaled: 0.9492
(1.0155) loss_bbox_enc_unscaled: 0.0872 (0.0888) loss_giou_enc_unscaled:
0.1375 (0.1483) cardinality_error_enc_unscaled: 168.5000 (161.4539)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.750
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.922
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.842
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.406
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.759
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.616
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.853
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.886
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000

```
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.635
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.891
Test:  [ 0/38]  eta: 0:00:23  class_error: 0.00  loss: 4.3071 (4.3071)  loss_ce:
0.3789 (0.3789)  loss_bbox: 0.2146 (0.2146)  loss_giou: 0.1285 (0.1285)
loss_ce_0: 0.6719 (0.6719)  loss_bbox_0: 0.1970 (0.1970)  loss_giou_0: 0.1184
(0.1184)  loss_ce_1: 0.3906 (0.3906)  loss_bbox_1: 0.1987 (0.1987)  loss_giou_1:
0.1157 (0.1157)  loss_ce_enc: 1.1484 (1.1484)  loss_bbox_enc: 0.4829 (0.4829)
loss_giou_enc: 0.2615 (0.2615)  loss_ce_unscaled: 0.3789 (0.3789)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0429 (0.0429)
loss_giou_unscaled: 0.0643 (0.0643)  cardinality_error_unscaled: 231.2500
(231.2500)  loss_ce_0_unscaled: 0.6719 (0.6719)  loss_bbox_0_unscaled: 0.0394
(0.0394)  loss_giou_0_unscaled: 0.0592 (0.0592)  cardinality_error_0_unscaled:
134.2500 (134.2500)  loss_ce_1_unscaled: 0.3906 (0.3906)  loss_bbox_1_unscaled:
0.0397 (0.0397)  loss_giou_1_unscaled: 0.0579 (0.0579)
cardinality_error_1_unscaled: 178.2500 (178.2500)  loss_ce_enc_unscaled: 1.1484
(1.1484)  loss_bbox_enc_unscaled: 0.0966 (0.0966)  loss_giou_enc_unscaled:
0.1308 (0.1308)  cardinality_error_enc_unscaled: 148.0000 (148.0000)  time:
0.6283  data: 0.3212  max mem: 9284
Test:  [10/38]  eta: 0:00:10  class_error: 28.57  loss: 5.1380 (5.1796)
loss_ce: 0.5039 (0.5783)  loss_bbox: 0.2827 (0.3188)  loss_giou: 0.2134 (0.2025)
loss_ce_0: 0.7578 (0.7983)  loss_bbox_0: 0.2342 (0.2761)  loss_giou_0: 0.1305
(0.1921)  loss_ce_1: 0.6250 (0.5918)  loss_bbox_1: 0.2538 (0.2752)  loss_giou_1:
0.1810 (0.1886)  loss_ce_enc: 1.1016 (1.1033)  loss_bbox_enc: 0.3861 (0.3907)
loss_giou_enc: 0.2615 (0.2639)  loss_ce_unscaled: 0.5039 (0.5783)
class_error_unscaled: 0.0000 (3.5065)  loss_bbox_unscaled: 0.0565 (0.0638)
loss_giou_unscaled: 0.1067 (0.1012)  cardinality_error_unscaled: 270.2500
(262.6591)  loss_ce_0_unscaled: 0.7578 (0.7983)  loss_bbox_0_unscaled: 0.0468
(0.0552)  loss_giou_0_unscaled: 0.0652 (0.0960)  cardinality_error_0_unscaled:
206.5000 (190.1818)  loss_ce_1_unscaled: 0.6250 (0.5918)  loss_bbox_1_unscaled:
0.0508 (0.0550)  loss_giou_1_unscaled: 0.0905 (0.0943)
cardinality_error_1_unscaled: 212.5000 (233.4773)  loss_ce_enc_unscaled: 1.1016
(1.1033)  loss_bbox_enc_unscaled: 0.0772 (0.0781)  loss_giou_enc_unscaled:
0.1308 (0.1320)  cardinality_error_enc_unscaled: 157.2500 (151.6136)  time:
0.3887  data: 0.0477  max mem: 9284
Test:  [20/38]  eta: 0:00:06  class_error: 0.00  loss: 4.6788 (4.9640)  loss_ce:
0.4707 (0.5329)  loss_bbox: 0.2827 (0.3124)  loss_giou: 0.1611 (0.1885)
loss_ce_0: 0.7461 (0.7786)  loss_bbox_0: 0.2342 (0.2673)  loss_giou_0: 0.1503
(0.1780)  loss_ce_1: 0.4551 (0.5366)  loss_bbox_1: 0.2856 (0.2855)  loss_giou_1:
0.1468 (0.1803)  loss_ce_enc: 1.0781 (1.1071)  loss_bbox_enc: 0.3189 (0.3625)
loss_giou_enc: 0.2103 (0.2341)  loss_ce_unscaled: 0.4707 (0.5329)
class_error_unscaled: 0.0000 (3.9002)  loss_bbox_unscaled: 0.0565 (0.0625)
loss_giou_unscaled: 0.0805 (0.0943)  cardinality_error_unscaled: 270.2500
(257.3571)  loss_ce_0_unscaled: 0.7461 (0.7786)  loss_bbox_0_unscaled: 0.0468
(0.0535)  loss_giou_0_unscaled: 0.0752 (0.0890)  cardinality_error_0_unscaled:
212.2500 (192.3810)  loss_ce_1_unscaled: 0.4551 (0.5366)  loss_bbox_1_unscaled:
0.0571 (0.0571)  loss_giou_1_unscaled: 0.0734 (0.0902)
cardinality_error_1_unscaled: 219.0000 (228.9762)  loss_ce_enc_unscaled: 1.0781
(1.1071)  loss_bbox_enc_unscaled: 0.0638 (0.0725)  loss_giou_enc_unscaled:
```

0.1051 (0.1171) cardinality_error_enc_unscaled: 140.5000 (152.8452) time:
0.3308 data: 0.0202 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.3988 (4.7498) loss_ce:
0.4043 (0.4933) loss_bbox: 0.2680 (0.2849) loss_giou: 0.1414 (0.1832)
loss_ce_0: 0.7188 (0.7559) loss_bbox_0: 0.2120 (0.2485) loss_giou_0: 0.1470
(0.1718) loss_ce_1: 0.4004 (0.5050) loss_bbox_1: 0.2608 (0.2670) loss_giou_1:
0.1446 (0.1769) loss_ce_enc: 1.0312 (1.0864) loss_bbox_enc: 0.3189 (0.3459)
loss_giou_enc: 0.2015 (0.2311) loss_ce_unscaled: 0.4043 (0.4933)
class_error_unscaled: 0.0000 (2.6421) loss_bbox_unscaled: 0.0536 (0.0570)
loss_giou_unscaled: 0.0707 (0.0916) cardinality_error_unscaled: 291.2500
(265.2581) loss_ce_0_unscaled: 0.7188 (0.7559) loss_bbox_0_unscaled: 0.0424
(0.0497) loss_giou_0_unscaled: 0.0735 (0.0859) cardinality_error_0_unscaled:
212.2500 (199.9919) loss_ce_1_unscaled: 0.4004 (0.5050) loss_bbox_1_unscaled:
0.0522 (0.0534) loss_giou_1_unscaled: 0.0723 (0.0884)
cardinality_error_1_unscaled: 253.5000 (236.5726) loss_ce_enc_unscaled: 1.0312
(1.0864) loss_bbox_enc_unscaled: 0.0638 (0.0692) loss_giou_enc_unscaled:
0.1007 (0.1155) cardinality_error_enc_unscaled: 175.5000 (167.7500) time:
0.2930 data: 0.0190 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.4315 (4.7748) loss_ce:
0.4570 (0.4897) loss_bbox: 0.2538 (0.2832) loss_giou: 0.1476 (0.1882)
loss_ce_0: 0.7188 (0.7560) loss_bbox_0: 0.2184 (0.2544) loss_giou_0: 0.1624
(0.1797) loss_ce_1: 0.4492 (0.5064) loss_bbox_1: 0.2558 (0.2664) loss_giou_1:
0.1489 (0.1820) loss_ce_enc: 1.0156 (1.0743) loss_bbox_enc: 0.3486 (0.3541)
loss_giou_enc: 0.2121 (0.2405) loss_ce_unscaled: 0.4570 (0.4897)
class_error_unscaled: 0.0000 (2.1554) loss_bbox_unscaled: 0.0508 (0.0566)
loss_giou_unscaled: 0.0738 (0.0941) cardinality_error_unscaled: 294.5000
(270.4868) loss_ce_0_unscaled: 0.7188 (0.7560) loss_bbox_0_unscaled: 0.0437
(0.0509) loss_giou_0_unscaled: 0.0812 (0.0898) cardinality_error_0_unscaled:
233.2500 (207.4868) loss_ce_1_unscaled: 0.4492 (0.5064) loss_bbox_1_unscaled:
0.0512 (0.0533) loss_giou_1_unscaled: 0.0744 (0.0910)
cardinality_error_1_unscaled: 262.7500 (242.7171) loss_ce_enc_unscaled: 1.0156
(1.0743) loss_bbox_enc_unscaled: 0.0697 (0.0708) loss_giou_enc_unscaled:
0.1060 (0.1202) cardinality_error_enc_unscaled: 181.0000 (172.7303) time:
0.2834 data: 0.0173 max mem: 9284
Test: Total time: 0:00:12 (0.3196 s / it)
Averaged stats: class_error: 0.00 loss: 4.4315 (4.7748) loss_ce: 0.4570
(0.4897) loss_bbox: 0.2538 (0.2832) loss_giou: 0.1476 (0.1882) loss_ce_0:
0.7188 (0.7560) loss_bbox_0: 0.2184 (0.2544) loss_giou_0: 0.1624 (0.1797)
loss_ce_1: 0.4492 (0.5064) loss_bbox_1: 0.2558 (0.2664) loss_giou_1: 0.1489
(0.1820) loss_ce_enc: 1.0156 (1.0743) loss_bbox_enc: 0.3486 (0.3541)
loss_giou_enc: 0.2121 (0.2405) loss_ce_unscaled: 0.4570 (0.4897)
class_error_unscaled: 0.0000 (2.1554) loss_bbox_unscaled: 0.0508 (0.0566)
loss_giou_unscaled: 0.0738 (0.0941) cardinality_error_unscaled: 294.5000
(270.4868) loss_ce_0_unscaled: 0.7188 (0.7560) loss_bbox_0_unscaled: 0.0437
(0.0509) loss_giou_0_unscaled: 0.0812 (0.0898) cardinality_error_0_unscaled:
233.2500 (207.4868) loss_ce_1_unscaled: 0.4492 (0.5064) loss_bbox_1_unscaled:
0.0512 (0.0533) loss_giou_1_unscaled: 0.0744 (0.0910)
cardinality_error_1_unscaled: 262.7500 (242.7171) loss_ce_enc_unscaled: 1.0156

(1.0743) loss_bbox_enc_unscaled: 0.0697 (0.0708) loss_giou_enc_unscaled:
0.1060 (0.1202) cardinality_error_enc_unscaled: 181.0000 (172.7303)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.796
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.959
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.885
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.440
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.804
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.639
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.869
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.891
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.705
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.896
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [5] [0/87] eta: 0:12:27 lr: 0.000100 class_error: 0.00 loss: 3.9265
(3.9265) loss_ce: 0.3523 (0.3523) loss_bbox: 0.2063 (0.2063) loss_giou:
0.1176 (0.1176) loss_ce_0: 0.6129 (0.6129) loss_bbox_0: 0.2040 (0.2040)
loss_giou_0: 0.1170 (0.1170) loss_ce_1: 0.3600 (0.3600) loss_bbox_1: 0.1978
(0.1978) loss_giou_1: 0.1107 (0.1107) loss_ce_enc: 0.8974 (0.8974)
loss_bbox_enc: 0.4951 (0.4951) loss_giou_enc: 0.2553 (0.2553)
loss_ce_unscaled: 0.3523 (0.3523) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0413 (0.0413) loss_giou_unscaled: 0.0588 (0.0588)
cardinality_error_unscaled: 3872.5000 (3872.5000) loss_ce_0_unscaled: 0.6129
(0.6129) loss_bbox_0_unscaled: 0.0408 (0.0408) loss_giou_0_unscaled: 0.0585
(0.0585) cardinality_error_0_unscaled: 3344.5000 (3344.5000)
loss_ce_1_unscaled: 0.3600 (0.3600) loss_bbox_1_unscaled: 0.0396 (0.0396)
loss_giou_1_unscaled: 0.0553 (0.0553) cardinality_error_1_unscaled: 3681.5000
(3681.5000) loss_ce_enc_unscaled: 0.8974 (0.8974) loss_bbox_enc_unscaled:
0.0990 (0.0990) loss_giou_enc_unscaled: 0.1277 (0.1277)
cardinality_error_enc_unscaled: 3450.0000 (3450.0000) time: 8.5928 data:
1.1433 max mem: 9284
Epoch: [5] [10/87] eta: 0:09:22 lr: 0.000100 class_error: 0.00 loss: 3.9265
(4.4408) loss_ce: 0.3672 (0.4135) loss_bbox: 0.2063 (0.2782) loss_giou:
0.1533 (0.1698) loss_ce_0: 0.5993 (0.6470) loss_bbox_0: 0.2250 (0.2894)
loss_giou_0: 0.1619 (0.1757) loss_ce_1: 0.3974 (0.4461) loss_bbox_1: 0.2054
(0.2809) loss_giou_1: 0.1550 (0.1720) loss_ce_enc: 0.8687 (0.8503)
loss_bbox_enc: 0.4675 (0.4507) loss_giou_enc: 0.2460 (0.2674)
loss_ce_unscaled: 0.3672 (0.4135) class_error_unscaled: 0.0000 (1.2987)
loss_bbox_unscaled: 0.0413 (0.0556) loss_giou_unscaled: 0.0766 (0.0849)
cardinality_error_unscaled: 3872.7500 (3783.0909) loss_ce_0_unscaled: 0.5993
(0.6470) loss_bbox_0_unscaled: 0.0450 (0.0579) loss_giou_0_unscaled: 0.0810
(0.0878) cardinality_error_0_unscaled: 3344.5000 (3211.8864)

loss_ce_1_unscaled: 0.3974 (0.4461) loss_bbox_1_unscaled: 0.0411 (0.0562)
loss_giou_1_unscaled: 0.0775 (0.0860) cardinality_error_1_unscaled: 3681.5000
(3608.0682) loss_ce_enc_unscaled: 0.8687 (0.8503) loss_bbox_enc_unscaled:
0.0935 (0.0901) loss_giou_enc_unscaled: 0.1230 (0.1337)
cardinality_error_enc_unscaled: 3419.7500 (3352.0682) time: 7.3092 data:
0.1438 max mem: 9284
Epoch: [5] [20/87] eta: 0:07:56 lr: 0.000100 class_error: 0.00 loss: 4.3805
(4.4982) loss_ce: 0.3786 (0.4164) loss_bbox: 0.2457 (0.2839) loss_giou:
0.1533 (0.1767) loss_ce_0: 0.6045 (0.6483) loss_bbox_0: 0.2717 (0.2922)
loss_giou_0: 0.1594 (0.1822) loss_ce_1: 0.4159 (0.4452) loss_bbox_1: 0.2720
(0.2845) loss_giou_1: 0.1537 (0.1777) loss_ce_enc: 0.8751 (0.8954)
loss_bbox_enc: 0.4496 (0.4347) loss_giou_enc: 0.2455 (0.2608)
loss_ce_unscaled: 0.3786 (0.4164) class_error_unscaled: 0.0000 (1.3030)
loss_bbox_unscaled: 0.0491 (0.0568) loss_giou_unscaled: 0.0766 (0.0884)
cardinality_error_unscaled: 3846.5000 (3642.5357) loss_ce_0_unscaled: 0.6045
(0.6483) loss_bbox_0_unscaled: 0.0543 (0.0584) loss_giou_0_unscaled: 0.0797
(0.0911) cardinality_error_0_unscaled: 2926.7500 (3009.5119)
loss_ce_1_unscaled: 0.4159 (0.4452) loss_bbox_1_unscaled: 0.0544 (0.0569)
loss_giou_1_unscaled: 0.0768 (0.0889) cardinality_error_1_unscaled: 3651.7500
(3443.6667) loss_ce_enc_unscaled: 0.8751 (0.8954) loss_bbox_enc_unscaled:
0.0899 (0.0869) loss_giou_enc_unscaled: 0.1228 (0.1304)
cardinality_error_enc_unscaled: 3211.2500 (3189.0952) time: 7.0432 data:
0.0469 max mem: 9284
Epoch: [5] [30/87] eta: 0:06:44 lr: 0.000100 class_error: 0.00 loss: 4.3805
(4.4821) loss_ce: 0.4045 (0.4169) loss_bbox: 0.2650 (0.2791) loss_giou:
0.1591 (0.1737) loss_ce_0: 0.6651 (0.6564) loss_bbox_0: 0.2823 (0.2860)
loss_giou_0: 0.1604 (0.1794) loss_ce_1: 0.4451 (0.4443) loss_bbox_1: 0.2723
(0.2806) loss_giou_1: 0.1537 (0.1754) loss_ce_enc: 0.8841 (0.8933)
loss_bbox_enc: 0.4496 (0.4352) loss_giou_enc: 0.2487 (0.2617)
loss_ce_unscaled: 0.4045 (0.4169) class_error_unscaled: 0.0000 (0.8827)
loss_bbox_unscaled: 0.0530 (0.0558) loss_giou_unscaled: 0.0795 (0.0869)
cardinality_error_unscaled: 3534.7500 (3633.7581) loss_ce_0_unscaled: 0.6651
(0.6564) loss_bbox_0_unscaled: 0.0565 (0.0572) loss_giou_0_unscaled: 0.0802
(0.0897) cardinality_error_0_unscaled: 2792.5000 (2976.4597)
loss_ce_1_unscaled: 0.4451 (0.4443) loss_bbox_1_unscaled: 0.0545 (0.0561)
loss_giou_1_unscaled: 0.0768 (0.0877) cardinality_error_1_unscaled: 3504.5000
(3445.6371) loss_ce_enc_unscaled: 0.8841 (0.8933) loss_bbox_enc_unscaled:
0.0899 (0.0870) loss_giou_enc_unscaled: 0.1244 (0.1309)
cardinality_error_enc_unscaled: 2898.5000 (3156.2258) time: 6.9893 data:
0.0493 max mem: 9284
Epoch: [5] [40/87] eta: 0:05:30 lr: 0.000100 class_error: 0.00 loss: 4.2267
(4.4389) loss_ce: 0.3743 (0.4073) loss_bbox: 0.2461 (0.2717) loss_giou:
0.1823 (0.1724) loss_ce_0: 0.6406 (0.6489) loss_bbox_0: 0.2670 (0.2821)
loss_giou_0: 0.1946 (0.1786) loss_ce_1: 0.4132 (0.4359) loss_bbox_1: 0.2460
(0.2725) loss_giou_1: 0.1779 (0.1735) loss_ce_enc: 0.8700 (0.8777)
loss_bbox_enc: 0.4749 (0.4490) loss_giou_enc: 0.2804 (0.2691)
loss_ce_unscaled: 0.3743 (0.4073) class_error_unscaled: 0.0000 (0.6674)
loss_bbox_unscaled: 0.0492 (0.0543) loss_giou_unscaled: 0.0912 (0.0862)

cardinality_error_unscaled: 3810.2500 (3645.2134) loss_ce_0_unscaled: 0.6406
(0.6489) loss_bbox_0_unscaled: 0.0534 (0.0564) loss_giou_0_unscaled: 0.0973
(0.0893) cardinality_error_0_unscaled: 2999.5000 (3048.3841)
loss_ce_1_unscaled: 0.4132 (0.4359) loss_bbox_1_unscaled: 0.0492 (0.0545)
loss_giou_1_unscaled: 0.0889 (0.0868) cardinality_error_1_unscaled: 3563.7500
(3469.5305) loss_ce_enc_unscaled: 0.8700 (0.8777) loss_bbox_enc_unscaled:
0.0950 (0.0898) loss_giou_enc_unscaled: 0.1402 (0.1345)
cardinality_error_enc_unscaled: 3112.7500 (3170.0183) time: 6.9321 data:
0.0486 max mem: 9284
Epoch: [5] [50/87] eta: 0:04:21 lr: 0.000100 class_error: 0.00 loss: 4.4350
(4.6174) loss_ce: 0.4202 (0.4370) loss_bbox: 0.2461 (0.2848) loss_giou:
0.1661 (0.1849) loss_ce_0: 0.6477 (0.6666) loss_bbox_0: 0.2670 (0.2922)
loss_giou_0: 0.1954 (0.1894) loss_ce_1: 0.4266 (0.4583) loss_bbox_1: 0.2596
(0.2915) loss_giou_1: 0.1879 (0.1878) loss_ce_enc: 0.8248 (0.8876)
loss_bbox_enc: 0.4791 (0.4588) loss_giou_enc: 0.2734 (0.2784)
loss_ce_unscaled: 0.4202 (0.4370) class_error_unscaled: 0.0000 (1.2718)
loss_bbox_unscaled: 0.0492 (0.0570) loss_giou_unscaled: 0.0831 (0.0924)
cardinality_error_unscaled: 3740.5000 (3584.8873) loss_ce_0_unscaled: 0.6477
(0.6666) loss_bbox_0_unscaled: 0.0534 (0.0584) loss_giou_0_unscaled: 0.0977
(0.0947) cardinality_error_0_unscaled: 2886.0000 (2955.1520)
loss_ce_1_unscaled: 0.4266 (0.4583) loss_bbox_1_unscaled: 0.0519 (0.0583)
loss_giou_1_unscaled: 0.0940 (0.0939) cardinality_error_1_unscaled: 3605.2500
(3385.3529) loss_ce_enc_unscaled: 0.8248 (0.8876) loss_bbox_enc_unscaled:
0.0958 (0.0918) loss_giou_enc_unscaled: 0.1367 (0.1392)
cardinality_error_enc_unscaled: 2866.7500 (3044.2353) time: 6.9909 data:
0.0487 max mem: 9284
Epoch: [5] [60/87] eta: 0:03:11 lr: 0.000100 class_error: 0.00 loss: 5.0022
(4.6635) loss_ce: 0.5306 (0.4442) loss_bbox: 0.2953 (0.2902) loss_giou:
0.1640 (0.1872) loss_ce_0: 0.6915 (0.6658) loss_bbox_0: 0.3225 (0.2984)
loss_giou_0: 0.1920 (0.1930) loss_ce_1: 0.5409 (0.4656) loss_bbox_1: 0.3346
(0.2969) loss_giou_1: 0.1960 (0.1904) loss_ce_enc: 0.8698 (0.8897)
loss_bbox_enc: 0.4628 (0.4627) loss_giou_enc: 0.2734 (0.2794)
loss_ce_unscaled: 0.5306 (0.4442) class_error_unscaled: 0.0000 (1.9776)
loss_bbox_unscaled: 0.0591 (0.0580) loss_giou_unscaled: 0.0820 (0.0936)
cardinality_error_unscaled: 3740.5000 (3595.2172) loss_ce_0_unscaled: 0.6915
(0.6658) loss_bbox_0_unscaled: 0.0645 (0.0597) loss_giou_0_unscaled: 0.0960
(0.0965) cardinality_error_0_unscaled: 2886.0000 (2976.3238)
loss_ce_1_unscaled: 0.5409 (0.4656) loss_bbox_1_unscaled: 0.0669 (0.0594)
loss_giou_1_unscaled: 0.0980 (0.0952) cardinality_error_1_unscaled: 3517.7500
(3403.0574) loss_ce_enc_unscaled: 0.8698 (0.8897) loss_bbox_enc_unscaled:
0.0926 (0.0925) loss_giou_enc_unscaled: 0.1367 (0.1397)
cardinality_error_enc_unscaled: 2855.5000 (3004.5451) time: 7.1884 data:
0.0491 max mem: 9284
Epoch: [5] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 0.00 loss: 5.0022
(4.7018) loss_ce: 0.4994 (0.4536) loss_bbox: 0.2953 (0.2966) loss_giou:
0.1587 (0.1822) loss_ce_0: 0.6559 (0.6723) loss_bbox_0: 0.3225 (0.3061)
loss_giou_0: 0.1709 (0.1882) loss_ce_1: 0.5174 (0.4750) loss_bbox_1: 0.3142
(0.3020) loss_giou_1: 0.1585 (0.1846) loss_ce_enc: 0.8698 (0.8876)

loss_bbox_enc: 0.4997 (0.4768) loss_giou_enc: 0.2664 (0.2770)
loss_ce_unscaled: 0.4994 (0.4536) class_error_unscaled: 0.0000 (2.6967)
loss_bbox_unscaled: 0.0591 (0.0593) loss_giou_unscaled: 0.0794 (0.0911)
cardinality_error_unscaled: 3867.5000 (3612.1444) loss_ce_0_unscaled: 0.6559
(0.6723) loss_bbox_0_unscaled: 0.0645 (0.0612) loss_giou_0_unscaled: 0.0855
(0.0941) cardinality_error_0_unscaled: 3473.5000 (3040.3873)
loss_ce_1_unscaled: 0.5174 (0.4750) loss_bbox_1_unscaled: 0.0628 (0.0604)
loss_giou_1_unscaled: 0.0793 (0.0923) cardinality_error_1_unscaled: 3784.2500
(3430.2394) loss_ce_enc_unscaled: 0.8698 (0.8876) loss_bbox_enc_unscaled:
0.0999 (0.0954) loss_giou_enc_unscaled: 0.1332 (0.1385)
cardinality_error_enc_unscaled: 3054.5000 (3014.2007) time: 7.1408 data:
0.0490 max mem: 9284
Epoch: [5] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss: 4.1031
(4.5982) loss_ce: 0.3647 (0.4394) loss_bbox: 0.2347 (0.2872) loss_giou:
0.1273 (0.1747) loss_ce_0: 0.5909 (0.6580) loss_bbox_0: 0.2791 (0.2992)
loss_giou_0: 0.1489 (0.1817) loss_ce_1: 0.3996 (0.4611) loss_bbox_1: 0.2410
(0.2924) loss_giou_1: 0.1300 (0.1771) loss_ce_enc: 0.7870 (0.8735)
loss_bbox_enc: 0.4823 (0.4799) loss_giou_enc: 0.2233 (0.2740)
loss_ce_unscaled: 0.3647 (0.4394) class_error_unscaled: 0.0000 (2.3638)
loss_bbox_unscaled: 0.0469 (0.0574) loss_giou_unscaled: 0.0636 (0.0874)
cardinality_error_unscaled: 3876.7500 (3614.3673) loss_ce_0_unscaled: 0.5909
(0.6580) loss_bbox_0_unscaled: 0.0558 (0.0598) loss_giou_0_unscaled: 0.0745
(0.0909) cardinality_error_0_unscaled: 3614.5000 (3066.8765)
loss_ce_1_unscaled: 0.3996 (0.4611) loss_bbox_1_unscaled: 0.0482 (0.0585)
loss_giou_1_unscaled: 0.0650 (0.0886) cardinality_error_1_unscaled: 3787.0000
(3438.4444) loss_ce_enc_unscaled: 0.7870 (0.8735) loss_bbox_enc_unscaled:
0.0965 (0.0960) loss_giou_enc_unscaled: 0.1117 (0.1370)
cardinality_error_enc_unscaled: 3073.7500 (2996.0679) time: 7.0795 data:
0.0480 max mem: 9284
Epoch: [5] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 3.8998
(4.5949) loss_ce: 0.3567 (0.4350) loss_bbox: 0.2308 (0.2888) loss_giou:
0.1214 (0.1723) loss_ce_0: 0.5909 (0.6562) loss_bbox_0: 0.2316 (0.3000)
loss_giou_0: 0.1262 (0.1796) loss_ce_1: 0.3649 (0.4595) loss_bbox_1: 0.2187
(0.2935) loss_giou_1: 0.1112 (0.1746) loss_ce_enc: 0.8105 (0.8735)
loss_bbox_enc: 0.5132 (0.4884) loss_giou_enc: 0.2631 (0.2736)
loss_ce_unscaled: 0.3567 (0.4350) class_error_unscaled: 0.0000 (2.3776)
loss_bbox_unscaled: 0.0462 (0.0578) loss_giou_unscaled: 0.0607 (0.0862)
cardinality_error_unscaled: 3874.5000 (3617.3420) loss_ce_0_unscaled: 0.5909
(0.6562) loss_bbox_0_unscaled: 0.0463 (0.0600) loss_giou_0_unscaled: 0.0631
(0.0898) cardinality_error_0_unscaled: 3614.5000 (3083.9943)
loss_ce_1_unscaled: 0.3649 (0.4595) loss_bbox_1_unscaled: 0.0437 (0.0587)
loss_giou_1_unscaled: 0.0556 (0.0873) cardinality_error_1_unscaled: 3792.5000
(3447.2299) loss_ce_enc_unscaled: 0.8105 (0.8735) loss_bbox_enc_unscaled:
0.1026 (0.0977) loss_giou_enc_unscaled: 0.1316 (0.1368)
cardinality_error_enc_unscaled: 3073.7500 (2996.1293) time: 7.0790 data:
0.0479 max mem: 9284
Epoch: [5] Total time: 0:10:16 (7.0879 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 3.8998 (4.5949) loss_ce:

0.3567 (0.4350) loss_bbox: 0.2308 (0.2888) loss_giou: 0.1214 (0.1723)
loss_ce_0: 0.5909 (0.6562) loss_bbox_0: 0.2316 (0.3000) loss_giou_0: 0.1262
(0.1796) loss_ce_1: 0.3649 (0.4595) loss_bbox_1: 0.2187 (0.2935) loss_giou_1:
0.1112 (0.1746) loss_ce_enc: 0.8105 (0.8735) loss_bbox_enc: 0.5132 (0.4884)
loss_giou_enc: 0.2631 (0.2736) loss_ce_unscaled: 0.3567 (0.4350)
class_error_unscaled: 0.0000 (2.3776) loss_bbox_unscaled: 0.0462 (0.0578)
loss_giou_unscaled: 0.0607 (0.0862) cardinality_error_unscaled: 3874.5000
(3617.3420) loss_ce_0_unscaled: 0.5909 (0.6562) loss_bbox_0_unscaled: 0.0463
(0.0600) loss_giou_0_unscaled: 0.0631 (0.0898) cardinality_error_0_unscaled:
3614.5000 (3083.9943) loss_ce_1_unscaled: 0.3649 (0.4595)
loss_bbox_1_unscaled: 0.0437 (0.0587) loss_giou_1_unscaled: 0.0556 (0.0873)
cardinality_error_1_unscaled: 3792.5000 (3447.2299) loss_ce_enc_unscaled:
0.8105 (0.8735) loss_bbox_enc_unscaled: 0.1026 (0.0977)
loss_giou_enc_unscaled: 0.1316 (0.1368) cardinality_error_enc_unscaled:
3073.7500 (2996.1293)
Test: [0/38] eta: 0:00:25 class_error: 0.00 loss: 4.2020 (4.2020) loss_ce:
0.4199 (0.4199) loss_bbox: 0.1528 (0.1528) loss_giou: 0.1145 (0.1145)
loss_ce_0: 0.6211 (0.6211) loss_bbox_0: 0.2435 (0.2435) loss_giou_0: 0.1368
(0.1368) loss_ce_1: 0.4238 (0.4238) loss_bbox_1: 0.1949 (0.1949) loss_giou_1:
0.1314 (0.1314) loss_ce_enc: 0.8789 (0.8789) loss_bbox_enc: 0.5889 (0.5889)
loss_giou_enc: 0.2955 (0.2955) loss_ce_unscaled: 0.4199 (0.4199)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0306 (0.0306)
loss_giou_unscaled: 0.0572 (0.0572) cardinality_error_unscaled: 245.2500
(245.2500) loss_ce_0_unscaled: 0.6211 (0.6211) loss_bbox_0_unscaled: 0.0487
(0.0487) loss_giou_0_unscaled: 0.0684 (0.0684) cardinality_error_0_unscaled:
170.5000 (170.5000) loss_ce_1_unscaled: 0.4238 (0.4238) loss_bbox_1_unscaled:
0.0390 (0.0390) loss_giou_1_unscaled: 0.0657 (0.0657)
cardinality_error_1_unscaled: 232.2500 (232.2500) loss_ce_enc_unscaled: 0.8789
(0.8789) loss_bbox_enc_unscaled: 0.1178 (0.1178) loss_giou_enc_unscaled:
0.1478 (0.1478) cardinality_error_enc_unscaled: 96.0000 (96.0000) time: 0.6823
data: 0.3210 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 14.29 loss: 5.0535 (5.0701)
loss_ce: 0.5859 (0.5449) loss_bbox: 0.3013 (0.3198) loss_giou: 0.1975 (0.2082)
loss_ce_0: 0.7305 (0.7129) loss_bbox_0: 0.2435 (0.2951) loss_giou_0: 0.1504
(0.1972) loss_ce_1: 0.4980 (0.5449) loss_bbox_1: 0.2540 (0.3349) loss_giou_1:
0.2231 (0.2146) loss_ce_enc: 0.9141 (0.9219) loss_bbox_enc: 0.4929 (0.4832)
loss_giou_enc: 0.2955 (0.2926) loss_ce_unscaled: 0.5859 (0.5449)
class_error_unscaled: 0.0000 (5.6169) loss_bbox_unscaled: 0.0603 (0.0640)
loss_giou_unscaled: 0.0987 (0.1041) cardinality_error_unscaled: 272.5000
(269.9773) loss_ce_0_unscaled: 0.7305 (0.7129) loss_bbox_0_unscaled: 0.0487
(0.0590) loss_giou_0_unscaled: 0.0752 (0.0986) cardinality_error_0_unscaled:
227.5000 (225.8409) loss_ce_1_unscaled: 0.4980 (0.5449) loss_bbox_1_unscaled:
0.0508 (0.0670) loss_giou_1_unscaled: 0.1115 (0.1073)
cardinality_error_1_unscaled: 260.5000 (260.2500) loss_ce_enc_unscaled: 0.9141
(0.9219) loss_bbox_enc_unscaled: 0.0986 (0.0966) loss_giou_enc_unscaled:
0.1478 (0.1463) cardinality_error_enc_unscaled: 126.5000 (132.1591) time:
0.3708 data: 0.0457 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.9608 (5.0674) loss_ce:

53

0.4512 (0.5063) loss_bbox: 0.3002 (0.3455) loss_giou: 0.1699 (0.2070)
loss_ce_0: 0.6914 (0.6900) loss_bbox_0: 0.2755 (0.3260) loss_giou_0: 0.1803
(0.2014) loss_ce_1: 0.4258 (0.5091) loss_bbox_1: 0.2881 (0.3534) loss_giou_1:
0.1808 (0.2109) loss_ce_enc: 0.9102 (0.9144) loss_bbox_enc: 0.4841 (0.5065)
loss_giou_enc: 0.2670 (0.2968) loss_ce_unscaled: 0.4512 (0.5063)
class_error_unscaled: 0.0000 (3.7358) loss_bbox_unscaled: 0.0600 (0.0691)
loss_giou_unscaled: 0.0849 (0.1035) cardinality_error_unscaled: 272.5000
(264.4524) loss_ce_0_unscaled: 0.6914 (0.6900) loss_bbox_0_unscaled: 0.0551
(0.0652) loss_giou_0_unscaled: 0.0902 (0.1007) cardinality_error_0_unscaled:
227.5000 (223.0714) loss_ce_1_unscaled: 0.4258 (0.5091) loss_bbox_1_unscaled:
0.0576 (0.0707) loss_giou_1_unscaled: 0.0904 (0.1055)
cardinality_error_1_unscaled: 260.5000 (253.4286) loss_ce_enc_unscaled: 0.9102
(0.9144) loss_bbox_enc_unscaled: 0.0968 (0.1013) loss_giou_enc_unscaled:
0.1335 (0.1484) cardinality_error_enc_unscaled: 141.0000 (142.3810) time:
0.3082 data: 0.0180 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.5606 (4.8788) loss_ce:
0.4512 (0.5002) loss_bbox: 0.2292 (0.3068) loss_giou: 0.1624 (0.1956)
loss_ce_0: 0.6523 (0.6955) loss_bbox_0: 0.2338 (0.2934) loss_giou_0: 0.1742
(0.1923) loss_ce_1: 0.5078 (0.5252) loss_bbox_1: 0.2337 (0.3053) loss_giou_1:
0.1624 (0.1975) loss_ce_enc: 0.8203 (0.8880) loss_bbox_enc: 0.4841 (0.4834)
loss_giou_enc: 0.2721 (0.2957) loss_ce_unscaled: 0.4512 (0.5002)
class_error_unscaled: 0.0000 (3.4691) loss_bbox_unscaled: 0.0458 (0.0614)
loss_giou_unscaled: 0.0812 (0.0978) cardinality_error_unscaled: 295.0000
(271.0323) loss_ce_0_unscaled: 0.6523 (0.6955) loss_bbox_0_unscaled: 0.0468
(0.0587) loss_giou_0_unscaled: 0.0871 (0.0961) cardinality_error_0_unscaled:
266.5000 (234.8065) loss_ce_1_unscaled: 0.5078 (0.5252) loss_bbox_1_unscaled:
0.0467 (0.0611) loss_giou_1_unscaled: 0.0812 (0.0987)
cardinality_error_1_unscaled: 287.2500 (260.3629) loss_ce_enc_unscaled: 0.8203
(0.8880) loss_bbox_enc_unscaled: 0.0968 (0.0967) loss_giou_enc_unscaled:
0.1361 (0.1478) cardinality_error_enc_unscaled: 168.7500 (158.1210) time:
0.2802 data: 0.0176 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.6283 (4.9217) loss_ce:
0.4551 (0.5028) loss_bbox: 0.2450 (0.3071) loss_giou: 0.1792 (0.2025)
loss_ce_0: 0.6406 (0.6867) loss_bbox_0: 0.2511 (0.3079) loss_giou_0: 0.1853
(0.2035) loss_ce_1: 0.4980 (0.5248) loss_bbox_1: 0.2337 (0.3065) loss_giou_1:
0.1624 (0.2046) loss_ce_enc: 0.7773 (0.8687) loss_bbox_enc: 0.4841 (0.4983)
loss_giou_enc: 0.2843 (0.3082) loss_ce_unscaled: 0.4551 (0.5028)
class_error_unscaled: 0.0000 (3.4222) loss_bbox_unscaled: 0.0490 (0.0614)
loss_giou_unscaled: 0.0896 (0.1013) cardinality_error_unscaled: 295.0000
(275.3158) loss_ce_0_unscaled: 0.6406 (0.6867) loss_bbox_0_unscaled: 0.0502
(0.0616) loss_giou_0_unscaled: 0.0926 (0.1017) cardinality_error_0_unscaled:
266.5000 (241.0395) loss_ce_1_unscaled: 0.4980 (0.5248) loss_bbox_1_unscaled:
0.0467 (0.0613) loss_giou_1_unscaled: 0.0812 (0.1023)
cardinality_error_1_unscaled: 286.2500 (265.2566) loss_ce_enc_unscaled: 0.7773
(0.8687) loss_bbox_enc_unscaled: 0.0968 (0.0997) loss_giou_enc_unscaled:
0.1421 (0.1541) cardinality_error_enc_unscaled: 200.5000 (167.4605) time:
0.2855 data: 0.0194 max mem: 9284
Test: Total time: 0:00:11 (0.3108 s / it)

```
Averaged stats: class_error: 0.00  loss: 4.6283 (4.9217)  loss_ce: 0.4551
(0.5028)  loss_bbox: 0.2450 (0.3071)  loss_giou: 0.1792 (0.2025)  loss_ce_0:
0.6406 (0.6867)  loss_bbox_0: 0.2511 (0.3079)  loss_giou_0: 0.1853 (0.2035)
loss_ce_1: 0.4980 (0.5248)  loss_bbox_1: 0.2337 (0.3065)  loss_giou_1: 0.1624
(0.2046)  loss_ce_enc: 0.7773 (0.8687)  loss_bbox_enc: 0.4841 (0.4983)
loss_giou_enc: 0.2843 (0.3082)  loss_ce_unscaled: 0.4551 (0.5028)
class_error_unscaled: 0.0000 (3.4222)  loss_bbox_unscaled: 0.0490 (0.0614)
loss_giou_unscaled: 0.0896 (0.1013)  cardinality_error_unscaled: 295.0000
(275.3158)  loss_ce_0_unscaled: 0.6406 (0.6867)  loss_bbox_0_unscaled: 0.0502
(0.0616)  loss_giou_0_unscaled: 0.0926 (0.1017)  cardinality_error_0_unscaled:
266.5000 (241.0395)  loss_ce_1_unscaled: 0.4980 (0.5248)  loss_bbox_1_unscaled:
0.0467 (0.0613)  loss_giou_1_unscaled: 0.0812 (0.1023)
cardinality_error_1_unscaled: 286.2500 (265.2566)  loss_ce_enc_unscaled: 0.7773
(0.8687)  loss_bbox_enc_unscaled: 0.0968 (0.0997)  loss_giou_enc_unscaled:
0.1421 (0.1541)  cardinality_error_enc_unscaled: 200.5000 (167.4605)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.769
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.936
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.847
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.454
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.776
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.629
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.863
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.887
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.620
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.891
Test: [ 0/38]  eta: 0:00:22  class_error: 0.00  loss: 3.8420 (3.8420)  loss_ce:
0.3125 (0.3125)  loss_bbox: 0.1729 (0.1729)  loss_giou: 0.1178 (0.1178)
loss_ce_0: 0.5664 (0.5664)  loss_bbox_0: 0.2043 (0.2043)  loss_giou_0: 0.1292
(0.1292)  loss_ce_1: 0.3281 (0.3281)  loss_bbox_1: 0.2074 (0.2074)  loss_giou_1:
0.1281 (0.1281)  loss_ce_enc: 0.9688 (0.9688)  loss_bbox_enc: 0.4670 (0.4670)
loss_giou_enc: 0.2395 (0.2395)  loss_ce_unscaled: 0.3125 (0.3125)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0346 (0.0346)
loss_giou_unscaled: 0.0589 (0.0589)  cardinality_error_unscaled: 245.5000
(245.5000)  loss_ce_0_unscaled: 0.5664 (0.5664)  loss_bbox_0_unscaled: 0.0409
(0.0409)  loss_giou_0_unscaled: 0.0646 (0.0646)  cardinality_error_0_unscaled:
156.5000 (156.5000)  loss_ce_1_unscaled: 0.3281 (0.3281)  loss_bbox_1_unscaled:
0.0415 (0.0415)  loss_giou_1_unscaled: 0.0640 (0.0640)
cardinality_error_1_unscaled: 218.0000 (218.0000)  loss_ce_enc_unscaled: 0.9688
(0.9688)  loss_bbox_enc_unscaled: 0.0934 (0.0934)  loss_giou_enc_unscaled:
0.1197 (0.1197)  cardinality_error_enc_unscaled: 135.7500 (135.7500)  time:
0.5972  data: 0.3026  max mem: 9284
Test: [10/38]  eta: 0:00:08  class_error: 28.57  loss: 4.9340 (4.9538)
loss_ce: 0.5547 (0.5726)  loss_bbox: 0.2606 (0.2936)  loss_giou: 0.2072 (0.1977)
```

loss_ce_0: 0.7188 (0.7575) loss_bbox_0: 0.2209 (0.2384) loss_giou_0: 0.1298 (0.1705) loss_ce_1: 0.4492 (0.5559) loss_bbox_1: 0.2111 (0.2943) loss_giou_1: 0.1971 (0.1924) loss_ce_enc: 0.9688 (0.9567) loss_bbox_enc: 0.4029 (0.4445) loss_giou_enc: 0.2794 (0.2797) loss_ce_unscaled: 0.5547 (0.5726) class_error_unscaled: 0.0000 (6.9156) loss_bbox_unscaled: 0.0521 (0.0587) loss_giou_unscaled: 0.1036 (0.0988) cardinality_error_unscaled: 273.2500 (270.1136) loss_ce_0_unscaled: 0.7188 (0.7575) loss_bbox_0_unscaled: 0.0442 (0.0477) loss_giou_0_unscaled: 0.0649 (0.0852) cardinality_error_0_unscaled: 214.5000 (218.5000) loss_ce_1_unscaled: 0.4492 (0.5559) loss_bbox_1_unscaled: 0.0422 (0.0589) loss_giou_1_unscaled: 0.0986 (0.0962) cardinality_error_1_unscaled: 250.7500 (252.2500) loss_ce_enc_unscaled: 0.9688 (0.9567) loss_bbox_enc_unscaled: 0.0806 (0.0889) loss_giou_enc_unscaled: 0.1397 (0.1399) cardinality_error_enc_unscaled: 143.0000 (152.5455) time: 0.3160 data: 0.0435 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.7192 (4.7999) loss_ce: 0.4355 (0.5149) loss_bbox: 0.2715 (0.2995) loss_giou: 0.1409 (0.1856) loss_ce_0: 0.6523 (0.7074) loss_bbox_0: 0.2355 (0.2784) loss_giou_0: 0.1579 (0.1766) loss_ce_1: 0.4219 (0.5077) loss_bbox_1: 0.2937 (0.3036) loss_giou_1: 0.1395 (0.1857) loss_ce_enc: 0.9297 (0.9563) loss_bbox_enc: 0.4024 (0.4259) loss_giou_enc: 0.2455 (0.2582) loss_ce_unscaled: 0.4355 (0.5149) class_error_unscaled: 0.0000 (5.2098) loss_bbox_unscaled: 0.0543 (0.0599) loss_giou_unscaled: 0.0704 (0.0928) cardinality_error_unscaled: 273.2500 (265.9643) loss_ce_0_unscaled: 0.6523 (0.7074) loss_bbox_0_unscaled: 0.0471 (0.0557) loss_giou_0_unscaled: 0.0790 (0.0883) cardinality_error_0_unscaled: 214.5000 (214.5119) loss_ce_1_unscaled: 0.4219 (0.5077) loss_bbox_1_unscaled: 0.0587 (0.0607) loss_giou_1_unscaled: 0.0697 (0.0929) cardinality_error_1_unscaled: 250.7500 (245.7619) loss_ce_enc_unscaled: 0.9297 (0.9563) loss_bbox_enc_unscaled: 0.0805 (0.0852) loss_giou_enc_unscaled: 0.1227 (0.1291) cardinality_error_enc_unscaled: 148.7500 (155.4048) time: 0.3150 data: 0.0176 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.1748 (4.6232) loss_ce: 0.4082 (0.4839) loss_bbox: 0.2704 (0.2838) loss_giou: 0.1409 (0.1832) loss_ce_0: 0.6328 (0.6988) loss_bbox_0: 0.2046 (0.2509) loss_giou_0: 0.1579 (0.1709) loss_ce_1: 0.4258 (0.5015) loss_bbox_1: 0.2224 (0.2774) loss_giou_1: 0.1394 (0.1816) loss_ce_enc: 0.8633 (0.9345) loss_bbox_enc: 0.3578 (0.4021) loss_giou_enc: 0.2455 (0.2546) loss_ce_unscaled: 0.4082 (0.4839) class_error_unscaled: 0.0000 (3.5292) loss_bbox_unscaled: 0.0541 (0.0568) loss_giou_unscaled: 0.0704 (0.0916) cardinality_error_unscaled: 294.5000 (271.9677) loss_ce_0_unscaled: 0.6328 (0.6988) loss_bbox_0_unscaled: 0.0409 (0.0502) loss_giou_0_unscaled: 0.0790 (0.0855) cardinality_error_0_unscaled: 239.0000 (223.8387) loss_ce_1_unscaled: 0.4258 (0.5015) loss_bbox_1_unscaled: 0.0445 (0.0555) loss_giou_1_unscaled: 0.0697 (0.0908) cardinality_error_1_unscaled: 277.7500 (253.9274) loss_ce_enc_unscaled: 0.8633 (0.9345) loss_bbox_enc_unscaled: 0.0716 (0.0804) loss_giou_enc_unscaled: 0.1227 (0.1273) cardinality_error_enc_unscaled: 179.5000 (170.3387) time: 0.3185 data: 0.0179 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.3226 (4.6550) loss_ce: 0.4180 (0.4912) loss_bbox: 0.2704 (0.2827) loss_giou: 0.1721 (0.1884)

```
loss_ce_0: 0.6797 (0.7046)  loss_bbox_0: 0.2104 (0.2574)  loss_giou_0: 0.1724
(0.1789)  loss_ce_1: 0.4648 (0.5091)  loss_bbox_1: 0.2336 (0.2767)  loss_giou_1:
0.1507 (0.1860)  loss_ce_enc: 0.8516 (0.9245)  loss_bbox_enc: 0.3578 (0.3976)
loss_giou_enc: 0.2628 (0.2579)  loss_ce_unscaled: 0.4180 (0.4912)
class_error_unscaled: 0.0000 (3.1422)  loss_bbox_unscaled: 0.0541 (0.0565)
loss_giou_unscaled: 0.0861 (0.0942)  cardinality_error_unscaled: 294.5000
(276.2566)  loss_ce_0_unscaled: 0.6797 (0.7046)  loss_bbox_0_unscaled: 0.0421
(0.0515)  loss_giou_0_unscaled: 0.0862 (0.0894)  cardinality_error_0_unscaled:
250.5000 (230.2763)  loss_ce_1_unscaled: 0.4648 (0.5091)  loss_bbox_1_unscaled:
0.0467 (0.0553)  loss_giou_1_unscaled: 0.0754 (0.0930)
cardinality_error_1_unscaled: 279.7500 (259.0526)  loss_ce_enc_unscaled: 0.8516
(0.9245)  loss_bbox_enc_unscaled: 0.0716 (0.0795)  loss_giou_enc_unscaled:
0.1314 (0.1290)  cardinality_error_enc_unscaled: 193.0000 (178.5658)  time:
0.2963  data: 0.0185  max mem: 9284
Test: Total time: 0:00:12 (0.3172 s / it)
Averaged stats: class_error: 0.00  loss: 4.3226 (4.6550)  loss_ce: 0.4180
(0.4912)  loss_bbox: 0.2704 (0.2827)  loss_giou: 0.1721 (0.1884)  loss_ce_0:
0.6797 (0.7046)  loss_bbox_0: 0.2104 (0.2574)  loss_giou_0: 0.1724 (0.1789)
loss_ce_1: 0.4648 (0.5091)  loss_bbox_1: 0.2336 (0.2767)  loss_giou_1: 0.1507
(0.1860)  loss_ce_enc: 0.8516 (0.9245)  loss_bbox_enc: 0.3578 (0.3976)
loss_giou_enc: 0.2628 (0.2579)  loss_ce_unscaled: 0.4180 (0.4912)
class_error_unscaled: 0.0000 (3.1422)  loss_bbox_unscaled: 0.0541 (0.0565)
loss_giou_unscaled: 0.0861 (0.0942)  cardinality_error_unscaled: 294.5000
(276.2566)  loss_ce_0_unscaled: 0.6797 (0.7046)  loss_bbox_0_unscaled: 0.0421
(0.0515)  loss_giou_0_unscaled: 0.0862 (0.0894)  cardinality_error_0_unscaled:
250.5000 (230.2763)  loss_ce_1_unscaled: 0.4648 (0.5091)  loss_bbox_1_unscaled:
0.0467 (0.0553)  loss_giou_1_unscaled: 0.0754 (0.0930)
cardinality_error_1_unscaled: 279.7500 (259.0526)  loss_ce_enc_unscaled: 0.8516
(0.9245)  loss_bbox_enc_unscaled: 0.0716 (0.0795)  loss_giou_enc_unscaled:
0.1314 (0.1290)  cardinality_error_enc_unscaled: 193.0000 (178.5658)
Accumulating evaluation results…
DONE (t=0.24s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.788
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.952
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.864
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.437
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.796
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.625
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.863
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.887
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.705
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.890
Grad accum steps:  4
Total batch size:  16
LENGTH OF DATA LOADER: 87
```

Epoch: [6] [0/87] eta: 0:12:03 lr: 0.000100 class_error: 0.00 loss: 5.2426
(5.2426) loss_ce: 0.4172 (0.4172) loss_bbox: 0.3462 (0.3462) loss_giou:
0.1772 (0.1772) loss_ce_0: 0.7813 (0.7813) loss_bbox_0: 0.3861 (0.3861)
loss_giou_0: 0.1865 (0.1865) loss_ce_1: 0.5973 (0.5973) loss_bbox_1: 0.3419
(0.3419) loss_giou_1: 0.1750 (0.1750) loss_ce_enc: 0.9994 (0.9994)
loss_bbox_enc: 0.5614 (0.5614) loss_giou_enc: 0.2732 (0.2732)
loss_ce_unscaled: 0.4172 (0.4172) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0692 (0.0692) loss_giou_unscaled: 0.0886 (0.0886)
cardinality_error_unscaled: 3805.7500 (3805.7500) loss_ce_0_unscaled: 0.7813
(0.7813) loss_bbox_0_unscaled: 0.0772 (0.0772) loss_giou_0_unscaled: 0.0933
(0.0933) cardinality_error_0_unscaled: 3222.5000 (3222.5000)
loss_ce_1_unscaled: 0.5973 (0.5973) loss_bbox_1_unscaled: 0.0684 (0.0684)
loss_giou_1_unscaled: 0.0875 (0.0875) cardinality_error_1_unscaled: 3601.2500
(3601.2500) loss_ce_enc_unscaled: 0.9994 (0.9994) loss_bbox_enc_unscaled:
0.1123 (0.1123) loss_giou_enc_unscaled: 0.1366 (0.1366)
cardinality_error_enc_unscaled: 2703.0000 (2703.0000) time: 8.3170 data:
1.0505 max mem: 9284
Epoch: [6] [10/87] eta: 0:09:15 lr: 0.000100 class_error: 14.29 loss:
4.2680 (4.3520) loss_ce: 0.3995 (0.4099) loss_bbox: 0.2099 (0.2595)
loss_giou: 0.1325 (0.1478) loss_ce_0: 0.6591 (0.6134) loss_bbox_0: 0.2860
(0.2828) loss_giou_0: 0.1710 (0.1527) loss_ce_1: 0.4132 (0.4505) loss_bbox_1:
0.2405 (0.2785) loss_giou_1: 0.1443 (0.1546) loss_ce_enc: 0.9009 (0.8583)
loss_bbox_enc: 0.5148 (0.4858) loss_giou_enc: 0.2594 (0.2582)
loss_ce_unscaled: 0.3995 (0.4099) class_error_unscaled: 0.0000 (3.6464)
loss_bbox_unscaled: 0.0420 (0.0519) loss_giou_unscaled: 0.0663 (0.0739)
cardinality_error_unscaled: 3613.7500 (3505.4773) loss_ce_0_unscaled: 0.6591
(0.6134) loss_bbox_0_unscaled: 0.0572 (0.0566) loss_giou_0_unscaled: 0.0855
(0.0764) cardinality_error_0_unscaled: 3222.5000 (2962.6364)
loss_ce_1_unscaled: 0.4132 (0.4505) loss_bbox_1_unscaled: 0.0481 (0.0557)
loss_giou_1_unscaled: 0.0721 (0.0773) cardinality_error_1_unscaled: 3590.5000
(3391.2955) loss_ce_enc_unscaled: 0.9009 (0.8583) loss_bbox_enc_unscaled:
0.1030 (0.0972) loss_giou_enc_unscaled: 0.1297 (0.1291)
cardinality_error_enc_unscaled: 2723.0000 (2630.0909) time: 7.2166 data:
0.1401 max mem: 9284
Epoch: [6] [20/87] eta: 0:07:55 lr: 0.000100 class_error: 0.00 loss: 3.9190
(4.2426) loss_ce: 0.3504 (0.3854) loss_bbox: 0.2099 (0.2674) loss_giou:
0.1320 (0.1488) loss_ce_0: 0.5974 (0.5968) loss_bbox_0: 0.2458 (0.2635)
loss_giou_0: 0.1257 (0.1489) loss_ce_1: 0.3821 (0.4266) loss_bbox_1: 0.2393
(0.2776) loss_giou_1: 0.1255 (0.1526) loss_ce_enc: 0.8202 (0.8581)
loss_bbox_enc: 0.4259 (0.4675) loss_giou_enc: 0.2463 (0.2495)
loss_ce_unscaled: 0.3504 (0.3854) class_error_unscaled: 0.0000 (2.0016)
loss_bbox_unscaled: 0.0420 (0.0535) loss_giou_unscaled: 0.0660 (0.0744)
cardinality_error_unscaled: 3834.5000 (3552.5714) loss_ce_0_unscaled: 0.5974
(0.5968) loss_bbox_0_unscaled: 0.0492 (0.0527) loss_giou_0_unscaled: 0.0629
(0.0744) cardinality_error_0_unscaled: 3180.0000 (3112.0119)
loss_ce_1_unscaled: 0.3821 (0.4266) loss_bbox_1_unscaled: 0.0479 (0.0555)
loss_giou_1_unscaled: 0.0627 (0.0763) cardinality_error_1_unscaled: 3780.0000
(3462.7976) loss_ce_enc_unscaled: 0.8202 (0.8581) loss_bbox_enc_unscaled:

0.0852 (0.0935) loss_giou_enc_unscaled: 0.1231 (0.1248)
cardinality_error_enc_unscaled: 2862.2500 (2813.5833) time: 7.0435 data:
0.0493 max mem: 9284
Epoch: [6] [30/87] eta: 0:06:45 lr: 0.000100 class_error: 0.00 loss: 4.1135
(4.3231) loss_ce: 0.3515 (0.3889) loss_bbox: 0.2383 (0.2687) loss_giou:
0.1118 (0.1480) loss_ce_0: 0.5978 (0.6282) loss_bbox_0: 0.2357 (0.2692)
loss_giou_0: 0.1257 (0.1509) loss_ce_1: 0.4100 (0.4432) loss_bbox_1: 0.2251
(0.2772) loss_giou_1: 0.1235 (0.1522) loss_ce_enc: 0.8452 (0.8658)
loss_bbox_enc: 0.4377 (0.4778) loss_giou_enc: 0.2363 (0.2531)
loss_ce_unscaled: 0.3515 (0.3889) class_error_unscaled: 0.0000 (1.3559)
loss_bbox_unscaled: 0.0477 (0.0537) loss_giou_unscaled: 0.0559 (0.0740)
cardinality_error_unscaled: 3849.7500 (3612.5565) loss_ce_0_unscaled: 0.5978
(0.6282) loss_bbox_0_unscaled: 0.0471 (0.0538) loss_giou_0_unscaled: 0.0629
(0.0754) cardinality_error_0_unscaled: 3489.7500 (3203.7823)
loss_ce_1_unscaled: 0.4100 (0.4432) loss_bbox_1_unscaled: 0.0450 (0.0554)
loss_giou_1_unscaled: 0.0618 (0.0761) cardinality_error_1_unscaled: 3784.5000
(3535.7823) loss_ce_enc_unscaled: 0.8452 (0.8658) loss_bbox_enc_unscaled:
0.0875 (0.0956) loss_giou_enc_unscaled: 0.1181 (0.1266)
cardinality_error_enc_unscaled: 3159.0000 (2906.8629) time: 7.0504 data:
0.0509 max mem: 9284
Epoch: [6] [40/87] eta: 0:05:32 lr: 0.000100 class_error: 0.00 loss: 4.6829
(4.5007) loss_ce: 0.4273 (0.4167) loss_bbox: 0.2566 (0.2818) loss_giou:
0.1488 (0.1566) loss_ce_0: 0.6369 (0.6489) loss_bbox_0: 0.2853 (0.2865)
loss_giou_0: 0.1590 (0.1613) loss_ce_1: 0.4466 (0.4683) loss_bbox_1: 0.2680
(0.2878) loss_giou_1: 0.1507 (0.1594) loss_ce_enc: 0.8994 (0.8788)
loss_bbox_enc: 0.4890 (0.4918) loss_giou_enc: 0.2567 (0.2626)
loss_ce_unscaled: 0.4273 (0.4167) class_error_unscaled: 0.0000 (1.0252)
loss_bbox_unscaled: 0.0513 (0.0564) loss_giou_unscaled: 0.0744 (0.0783)
cardinality_error_unscaled: 3840.0000 (3655.7195) loss_ce_0_unscaled: 0.6369
(0.6489) loss_bbox_0_unscaled: 0.0571 (0.0573) loss_giou_0_unscaled: 0.0795
(0.0806) cardinality_error_0_unscaled: 3367.7500 (3227.5732)
loss_ce_1_unscaled: 0.4466 (0.4683) loss_bbox_1_unscaled: 0.0536 (0.0576)
loss_giou_1_unscaled: 0.0753 (0.0797) cardinality_error_1_unscaled: 3791.2500
(3579.3415) loss_ce_enc_unscaled: 0.8994 (0.8788) loss_bbox_enc_unscaled:
0.0978 (0.0984) loss_giou_enc_unscaled: 0.1283 (0.1313)
cardinality_error_enc_unscaled: 3207.7500 (2987.2317) time: 7.0409 data:
0.0505 max mem: 9284
Epoch: [6] [50/87] eta: 0:04:20 lr: 0.000100 class_error: 0.00 loss: 4.6829
(4.5435) loss_ce: 0.3930 (0.4114) loss_bbox: 0.2735 (0.2919) loss_giou:
0.1652 (0.1636) loss_ce_0: 0.5950 (0.6397) loss_bbox_0: 0.3192 (0.2996)
loss_giou_0: 0.1895 (0.1695) loss_ce_1: 0.4378 (0.4582) loss_bbox_1: 0.2842
(0.2950) loss_giou_1: 0.1798 (0.1652) loss_ce_enc: 0.8917 (0.8631)
loss_bbox_enc: 0.5557 (0.5098) loss_giou_enc: 0.2997 (0.2765)
loss_ce_unscaled: 0.3930 (0.4114) class_error_unscaled: 0.0000 (1.6085)
loss_bbox_unscaled: 0.0547 (0.0584) loss_giou_unscaled: 0.0826 (0.0818)
cardinality_error_unscaled: 3858.5000 (3651.7696) loss_ce_0_unscaled: 0.5950
(0.6397) loss_bbox_0_unscaled: 0.0638 (0.0599) loss_giou_0_unscaled: 0.0948
(0.0847) cardinality_error_0_unscaled: 3310.5000 (3221.3529)

loss_ce_1_unscaled: 0.4378 (0.4582) loss_bbox_1_unscaled: 0.0568 (0.0590)
loss_giou_1_unscaled: 0.0899 (0.0826) cardinality_error_1_unscaled: 3806.2500
(3584.8676) loss_ce_enc_unscaled: 0.8917 (0.8631) loss_bbox_enc_unscaled:
0.1111 (0.1020) loss_giou_enc_unscaled: 0.1499 (0.1382)
cardinality_error_enc_unscaled: 3305.5000 (3032.2598) time: 6.9435 data:
0.0492 max mem: 9284
Epoch: [6] [60/87] eta: 0:03:09 lr: 0.000100 class_error: -0.00 loss:
4.4586 (4.5448) loss_ce: 0.3841 (0.4087) loss_bbox: 0.2957 (0.2936)
loss_giou: 0.1638 (0.1666) loss_ce_0: 0.5631 (0.6337) loss_bbox_0: 0.3017
(0.3023) loss_giou_0: 0.1736 (0.1717) loss_ce_1: 0.4136 (0.4561) loss_bbox_1:
0.2810 (0.2949) loss_giou_1: 0.1649 (0.1670) loss_ce_enc: 0.7537 (0.8543)
loss_bbox_enc: 0.5557 (0.5154) loss_giou_enc: 0.2978 (0.2804)
loss_ce_unscaled: 0.3841 (0.4087) class_error_unscaled: 0.0000 (1.3448)
loss_bbox_unscaled: 0.0591 (0.0587) loss_giou_unscaled: 0.0819 (0.0833)
cardinality_error_unscaled: 3866.5000 (3673.8975) loss_ce_0_unscaled: 0.5631
(0.6337) loss_bbox_0_unscaled: 0.0603 (0.0605) loss_giou_0_unscaled: 0.0868
(0.0859) cardinality_error_0_unscaled: 3350.5000 (3267.3279)
loss_ce_1_unscaled: 0.4136 (0.4561) loss_bbox_1_unscaled: 0.0562 (0.0590)
loss_giou_1_unscaled: 0.0824 (0.0835) cardinality_error_1_unscaled: 3840.7500
(3612.4549) loss_ce_enc_unscaled: 0.7537 (0.8543) loss_bbox_enc_unscaled:
0.1111 (0.1031) loss_giou_enc_unscaled: 0.1489 (0.1402)
cardinality_error_enc_unscaled: 3370.2500 (3095.2213) time: 6.8636 data:
0.0508 max mem: 9284
Epoch: [6] [70/87] eta: 0:01:59 lr: 0.000100 class_error: 0.00 loss: 4.1216
(4.4860) loss_ce: 0.3925 (0.4032) loss_bbox: 0.2686 (0.2868) loss_giou:
0.1543 (0.1646) loss_ce_0: 0.5502 (0.6226) loss_bbox_0: 0.2982 (0.2980)
loss_giou_0: 0.1703 (0.1711) loss_ce_1: 0.4136 (0.4456) loss_bbox_1: 0.2810
(0.2916) loss_giou_1: 0.1614 (0.1671) loss_ce_enc: 0.7644 (0.8441)
loss_bbox_enc: 0.5162 (0.5120) loss_giou_enc: 0.2765 (0.2794)
loss_ce_unscaled: 0.3925 (0.4032) class_error_unscaled: 0.0000 (1.2367)
loss_bbox_unscaled: 0.0537 (0.0574) loss_giou_unscaled: 0.0772 (0.0823)
cardinality_error_unscaled: 3866.5000 (3684.0352) loss_ce_0_unscaled: 0.5502
(0.6226) loss_bbox_0_unscaled: 0.0596 (0.0596) loss_giou_0_unscaled: 0.0851
(0.0855) cardinality_error_0_unscaled: 3580.5000 (3263.5000)
loss_ce_1_unscaled: 0.4136 (0.4456) loss_bbox_1_unscaled: 0.0562 (0.0583)
loss_giou_1_unscaled: 0.0807 (0.0835) cardinality_error_1_unscaled: 3850.0000
(3623.9085) loss_ce_enc_unscaled: 0.7644 (0.8441) loss_bbox_enc_unscaled:
0.1032 (0.1024) loss_giou_enc_unscaled: 0.1382 (0.1397)
cardinality_error_enc_unscaled: 3348.0000 (3095.0035) time: 6.9532 data:
0.0507 max mem: 9284
Epoch: [6] [80/87] eta: 0:00:49 lr: 0.000100 class_error: -0.00 loss:
4.5139 (4.5164) loss_ce: 0.4135 (0.4035) loss_bbox: 0.2597 (0.2919)
loss_giou: 0.1683 (0.1667) loss_ce_0: 0.5886 (0.6211) loss_bbox_0: 0.3130
(0.3064) loss_giou_0: 0.1774 (0.1743) loss_ce_1: 0.4117 (0.4440) loss_bbox_1:
0.2854 (0.2961) loss_giou_1: 0.1703 (0.1684) loss_ce_enc: 0.7788 (0.8403)
loss_bbox_enc: 0.4780 (0.5223) loss_giou_enc: 0.2911 (0.2814)
loss_ce_unscaled: 0.4135 (0.4035) class_error_unscaled: 0.0000 (1.2603)
loss_bbox_unscaled: 0.0519 (0.0584) loss_giou_unscaled: 0.0842 (0.0833)

cardinality_error_unscaled: 3846.7500 (3690.7130) loss_ce_0_unscaled: 0.5886 (0.6211) loss_bbox_0_unscaled: 0.0626 (0.0613) loss_giou_0_unscaled: 0.0887 (0.0872) cardinality_error_0_unscaled: 3558.5000 (3267.6080) loss_ce_1_unscaled: 0.4117 (0.4440) loss_bbox_1_unscaled: 0.0571 (0.0592) loss_giou_1_unscaled: 0.0852 (0.0842) cardinality_error_1_unscaled: 3796.7500 (3626.5278) loss_ce_enc_unscaled: 0.7788 (0.8403) loss_bbox_enc_unscaled: 0.0956 (0.1045) loss_giou_enc_unscaled: 0.1455 (0.1407) cardinality_error_enc_unscaled: 3047.5000 (3109.8951) time: 7.0560 data: 0.0501 max mem: 9284
Epoch: [6] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 4.5228 (4.5299) loss_ce: 0.4212 (0.4055) loss_bbox: 0.2573 (0.2892) loss_giou: 0.1765 (0.1723) loss_ce_0: 0.5967 (0.6209) loss_bbox_0: 0.3033 (0.3045) loss_giou_0: 0.2016 (0.1805) loss_ce_1: 0.4311 (0.4456) loss_bbox_1: 0.2690 (0.2946) loss_giou_1: 0.1817 (0.1748) loss_ce_enc: 0.7667 (0.8379) loss_bbox_enc: 0.4549 (0.5170) loss_giou_enc: 0.2955 (0.2870) loss_ce_unscaled: 0.4212 (0.4055) class_error_unscaled: 0.0000 (1.1734) loss_bbox_unscaled: 0.0515 (0.0578) loss_giou_unscaled: 0.0883 (0.0861) cardinality_error_unscaled: 3835.0000 (3680.3592) loss_ce_0_unscaled: 0.5967 (0.6209) loss_bbox_0_unscaled: 0.0607 (0.0609) loss_giou_0_unscaled: 0.1008 (0.0903) cardinality_error_0_unscaled: 3113.7500 (3257.2126) loss_ce_1_unscaled: 0.4311 (0.4456) loss_bbox_1_unscaled: 0.0538 (0.0589) loss_giou_1_unscaled: 0.0909 (0.0874) cardinality_error_1_unscaled: 3795.7500 (3609.7299) loss_ce_enc_unscaled: 0.7667 (0.8379) loss_bbox_enc_unscaled: 0.0910 (0.1034) loss_giou_enc_unscaled: 0.1477 (0.1435) cardinality_error_enc_unscaled: 3004.5000 (3100.5948) time: 6.9953 data: 0.0496 max mem: 9284
Epoch: [6] Total time: 0:10:10 (7.0174 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 4.5228 (4.5299) loss_ce: 0.4212 (0.4055) loss_bbox: 0.2573 (0.2892) loss_giou: 0.1765 (0.1723) loss_ce_0: 0.5967 (0.6209) loss_bbox_0: 0.3033 (0.3045) loss_giou_0: 0.2016 (0.1805) loss_ce_1: 0.4311 (0.4456) loss_bbox_1: 0.2690 (0.2946) loss_giou_1: 0.1817 (0.1748) loss_ce_enc: 0.7667 (0.8379) loss_bbox_enc: 0.4549 (0.5170) loss_giou_enc: 0.2955 (0.2870) loss_ce_unscaled: 0.4212 (0.4055) class_error_unscaled: 0.0000 (1.1734) loss_bbox_unscaled: 0.0515 (0.0578) loss_giou_unscaled: 0.0883 (0.0861) cardinality_error_unscaled: 3835.0000 (3680.3592) loss_ce_0_unscaled: 0.5967 (0.6209) loss_bbox_0_unscaled: 0.0607 (0.0609) loss_giou_0_unscaled: 0.1008 (0.0903) cardinality_error_0_unscaled: 3113.7500 (3257.2126) loss_ce_1_unscaled: 0.4311 (0.4456) loss_bbox_1_unscaled: 0.0538 (0.0589) loss_giou_1_unscaled: 0.0909 (0.0874) cardinality_error_1_unscaled: 3795.7500 (3609.7299) loss_ce_enc_unscaled: 0.7667 (0.8379) loss_bbox_enc_unscaled: 0.0910 (0.1034) loss_giou_enc_unscaled: 0.1477 (0.1435) cardinality_error_enc_unscaled: 3004.5000 (3100.5948)
Test: [0/38] eta: 0:00:26 class_error: 0.00 loss: 4.0800 (4.0800) loss_ce: 0.3438 (0.3438) loss_bbox: 0.1843 (0.1843) loss_giou: 0.1217 (0.1217) loss_ce_0: 0.5352 (0.5352) loss_bbox_0: 0.2465 (0.2465) loss_giou_0: 0.1371 (0.1371) loss_ce_1: 0.3770 (0.3770) loss_bbox_1: 0.2306 (0.2306) loss_giou_1: 0.1338 (0.1338) loss_ce_enc: 0.8398 (0.8398) loss_bbox_enc: 0.6178 (0.6178)

loss_giou_enc: 0.3124 (0.3124) loss_ce_unscaled: 0.3438 (0.3438)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0369 (0.0369)
loss_giou_unscaled: 0.0608 (0.0608) cardinality_error_unscaled: 265.2500
(265.2500) loss_ce_0_unscaled: 0.5352 (0.5352) loss_bbox_0_unscaled: 0.0493
(0.0493) loss_giou_0_unscaled: 0.0686 (0.0686) cardinality_error_0_unscaled:
184.2500 (184.2500) loss_ce_1_unscaled: 0.3770 (0.3770) loss_bbox_1_unscaled:
0.0461 (0.0461) loss_giou_1_unscaled: 0.0669 (0.0669)
cardinality_error_1_unscaled: 238.7500 (238.7500) loss_ce_enc_unscaled: 0.8398
(0.8398) loss_bbox_enc_unscaled: 0.1236 (0.1236) loss_giou_enc_unscaled:
0.1562 (0.1562) cardinality_error_enc_unscaled: 180.0000 (180.0000) time:
0.6928 data: 0.2999 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 14.29 loss: 5.0577 (5.0777)
loss_ce: 0.6250 (0.5856) loss_bbox: 0.2370 (0.3070) loss_giou: 0.2044 (0.1990)
loss_ce_0: 0.6875 (0.6875) loss_bbox_0: 0.2732 (0.3154) loss_giou_0: 0.1648
(0.2065) loss_ce_1: 0.5781 (0.5801) loss_bbox_1: 0.2315 (0.3094) loss_giou_1:
0.1934 (0.2000) loss_ce_enc: 0.9180 (0.9006) loss_bbox_enc: 0.5334 (0.4926)
loss_giou_enc: 0.3124 (0.2941) loss_ce_unscaled: 0.6250 (0.5856)
class_error_unscaled: 0.0000 (6.7532) loss_bbox_unscaled: 0.0474 (0.0614)
loss_giou_unscaled: 0.1022 (0.0995) cardinality_error_unscaled: 273.7500
(277.7273) loss_ce_0_unscaled: 0.6875 (0.6875) loss_bbox_0_unscaled: 0.0546
(0.0631) loss_giou_0_unscaled: 0.0824 (0.1033) cardinality_error_0_unscaled:
243.5000 (240.9091) loss_ce_1_unscaled: 0.5781 (0.5801) loss_bbox_1_unscaled:
0.0463 (0.0619) loss_giou_1_unscaled: 0.0967 (0.1000)
cardinality_error_1_unscaled: 277.5000 (265.8182) loss_ce_enc_unscaled: 0.9180
(0.9006) loss_bbox_enc_unscaled: 0.1067 (0.0985) loss_giou_enc_unscaled:
0.1562 (0.1470) cardinality_error_enc_unscaled: 215.0000 (193.7045) time:
0.3355 data: 0.0470 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 9.09 loss: 5.0289 (4.8424) loss_ce:
0.5977 (0.5440) loss_bbox: 0.2370 (0.2977) loss_giou: 0.1568 (0.1838)
loss_ce_0: 0.6328 (0.6458) loss_bbox_0: 0.2732 (0.3162) loss_giou_0: 0.1794
(0.1988) loss_ce_1: 0.4902 (0.5299) loss_bbox_1: 0.2644 (0.3010) loss_giou_1:
0.1534 (0.1869) loss_ce_enc: 0.8359 (0.8612) loss_bbox_enc: 0.4423 (0.4943)
loss_giou_enc: 0.2742 (0.2827) loss_ce_unscaled: 0.5977 (0.5440)
class_error_unscaled: 0.0000 (4.7640) loss_bbox_unscaled: 0.0474 (0.0595)
loss_giou_unscaled: 0.0784 (0.0919) cardinality_error_unscaled: 273.7500
(273.9524) loss_ce_0_unscaled: 0.6328 (0.6458) loss_bbox_0_unscaled: 0.0546
(0.0632) loss_giou_0_unscaled: 0.0897 (0.0994) cardinality_error_0_unscaled:
243.5000 (236.4167) loss_ce_1_unscaled: 0.4902 (0.5299) loss_bbox_1_unscaled:
0.0529 (0.0602) loss_giou_1_unscaled: 0.0767 (0.0934)
cardinality_error_1_unscaled: 277.5000 (259.7381) loss_ce_enc_unscaled: 0.8359
(0.8612) loss_bbox_enc_unscaled: 0.0885 (0.0989) loss_giou_enc_unscaled:
0.1371 (0.1414) cardinality_error_enc_unscaled: 198.2500 (196.0595) time:
0.3198 data: 0.0201 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 11.11 loss: 4.2917 (4.7446)
loss_ce: 0.5039 (0.5542) loss_bbox: 0.2290 (0.2798) loss_giou: 0.1568 (0.1819)
loss_ce_0: 0.6094 (0.6602) loss_bbox_0: 0.2532 (0.2942) loss_giou_0: 0.1735
(0.1935) loss_ce_1: 0.4766 (0.5346) loss_bbox_1: 0.2434 (0.2842) loss_giou_1:
0.1534 (0.1835) loss_ce_enc: 0.7734 (0.8366) loss_bbox_enc: 0.4248 (0.4645)

loss_giou_enc: 0.2637 (0.2776) loss_ce_unscaled: 0.5039 (0.5542)
class_error_unscaled: 0.0000 (4.2308) loss_bbox_unscaled: 0.0458 (0.0560)
loss_giou_unscaled: 0.0784 (0.0910) cardinality_error_unscaled: 296.2500
(278.2339) loss_ce_0_unscaled: 0.6094 (0.6602) loss_bbox_0_unscaled: 0.0506
(0.0588) loss_giou_0_unscaled: 0.0867 (0.0967) cardinality_error_0_unscaled:
269.0000 (243.2097) loss_ce_1_unscaled: 0.4766 (0.5346) loss_bbox_1_unscaled:
0.0487 (0.0568) loss_giou_1_unscaled: 0.0767 (0.0918)
cardinality_error_1_unscaled: 288.2500 (265.8387) loss_ce_enc_unscaled: 0.7734
(0.8366) loss_bbox_enc_unscaled: 0.0850 (0.0929) loss_giou_enc_unscaled:
0.1319 (0.1388) cardinality_error_enc_unscaled: 217.5000 (211.3387) time:
0.3083 data: 0.0180 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.4214 (4.7925) loss_ce:
0.5352 (0.5569) loss_bbox: 0.2654 (0.2838) loss_giou: 0.1984 (0.1906)
loss_ce_0: 0.6328 (0.6720) loss_bbox_0: 0.2542 (0.2959) loss_giou_0: 0.1735
(0.1984) loss_ce_1: 0.4766 (0.5430) loss_bbox_1: 0.2689 (0.2909) loss_giou_1:
0.1921 (0.1937) loss_ce_enc: 0.7734 (0.8292) loss_bbox_enc: 0.3993 (0.4561)
loss_giou_enc: 0.2637 (0.2821) loss_ce_unscaled: 0.5352 (0.5569)
class_error_unscaled: 0.0000 (4.0905) loss_bbox_unscaled: 0.0531 (0.0568)
loss_giou_unscaled: 0.0992 (0.0953) cardinality_error_unscaled: 296.5000
(281.5987) loss_ce_0_unscaled: 0.6328 (0.6720) loss_bbox_0_unscaled: 0.0508
(0.0592) loss_giou_0_unscaled: 0.0867 (0.0992) cardinality_error_0_unscaled:
278.7500 (249.4276) loss_ce_1_unscaled: 0.4766 (0.5430) loss_bbox_1_unscaled:
0.0538 (0.0582) loss_giou_1_unscaled: 0.0961 (0.0969)
cardinality_error_1_unscaled: 290.2500 (270.5987) loss_ce_enc_unscaled: 0.7734
(0.8292) loss_bbox_enc_unscaled: 0.0799 (0.0912) loss_giou_enc_unscaled:
0.1319 (0.1410) cardinality_error_enc_unscaled: 258.2500 (221.8553) time:
0.2715 data: 0.0168 max mem: 9284
Test: Total time: 0:00:11 (0.3098 s / it)
Averaged stats: class_error: 0.00 loss: 4.4214 (4.7925) loss_ce: 0.5352
(0.5569) loss_bbox: 0.2654 (0.2838) loss_giou: 0.1984 (0.1906) loss_ce_0:
0.6328 (0.6720) loss_bbox_0: 0.2542 (0.2959) loss_giou_0: 0.1735 (0.1984)
loss_ce_1: 0.4766 (0.5430) loss_bbox_1: 0.2689 (0.2909) loss_giou_1: 0.1921
(0.1937) loss_ce_enc: 0.7734 (0.8292) loss_bbox_enc: 0.3993 (0.4561)
loss_giou_enc: 0.2637 (0.2821) loss_ce_unscaled: 0.5352 (0.5569)
class_error_unscaled: 0.0000 (4.0905) loss_bbox_unscaled: 0.0531 (0.0568)
loss_giou_unscaled: 0.0992 (0.0953) cardinality_error_unscaled: 296.5000
(281.5987) loss_ce_0_unscaled: 0.6328 (0.6720) loss_bbox_0_unscaled: 0.0508
(0.0592) loss_giou_0_unscaled: 0.0867 (0.0992) cardinality_error_0_unscaled:
278.7500 (249.4276) loss_ce_1_unscaled: 0.4766 (0.5430) loss_bbox_1_unscaled:
0.0538 (0.0582) loss_giou_1_unscaled: 0.0961 (0.0969)
cardinality_error_1_unscaled: 290.2500 (270.5987) loss_ce_enc_unscaled: 0.7734
(0.8292) loss_bbox_enc_unscaled: 0.0799 (0.0912) loss_giou_enc_unscaled:
0.1319 (0.1410) cardinality_error_enc_unscaled: 258.2500 (221.8553)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.766
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.929

```
Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.851
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.413
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.775
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.630
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.861
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.891
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.700
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.895
```
Test: [0/38] eta: 0:00:24 class_error: 0.00 loss: 3.6402 (3.6402) loss_ce:
0.2734 (0.2734) loss_bbox: 0.1787 (0.1787) loss_giou: 0.1194 (0.1194)
loss_ce_0: 0.5156 (0.5156) loss_bbox_0: 0.2118 (0.2118) loss_giou_0: 0.1268
(0.1268) loss_ce_1: 0.3145 (0.3145) loss_bbox_1: 0.2126 (0.2126) loss_giou_1:
0.1315 (0.1315) loss_ce_enc: 0.8945 (0.8945) loss_bbox_enc: 0.4317 (0.4317)
loss_giou_enc: 0.2297 (0.2297) loss_ce_unscaled: 0.2734 (0.2734)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0357 (0.0357)
loss_giou_unscaled: 0.0597 (0.0597) cardinality_error_unscaled: 252.5000
(252.5000) loss_ce_0_unscaled: 0.5156 (0.5156) loss_bbox_0_unscaled: 0.0424
(0.0424) loss_giou_0_unscaled: 0.0634 (0.0634) cardinality_error_0_unscaled:
177.5000 (177.5000) loss_ce_1_unscaled: 0.3145 (0.3145) loss_bbox_1_unscaled:
0.0425 (0.0425) loss_giou_1_unscaled: 0.0657 (0.0657)
cardinality_error_1_unscaled: 243.2500 (243.2500) loss_ce_enc_unscaled: 0.8945
(0.8945) loss_bbox_enc_unscaled: 0.0863 (0.0863) loss_giou_enc_unscaled:
0.1148 (0.1148) cardinality_error_enc_unscaled: 140.7500 (140.7500) time:
0.6332 data: 0.3285 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 28.57 loss: 5.0089 (4.8077)
loss_ce: 0.5117 (0.5146) loss_bbox: 0.3227 (0.3278) loss_giou: 0.2127 (0.2095)
loss_ce_0: 0.6602 (0.6831) loss_bbox_0: 0.2456 (0.2597) loss_giou_0: 0.1582
(0.1833) loss_ce_1: 0.5039 (0.5506) loss_bbox_1: 0.2385 (0.2881) loss_giou_1:
0.1732 (0.1970) loss_ce_enc: 0.8945 (0.9087) loss_bbox_enc: 0.4165 (0.4244)
loss_giou_enc: 0.2297 (0.2610) loss_ce_unscaled: 0.5117 (0.5146)
class_error_unscaled: 0.0000 (8.0519) loss_bbox_unscaled: 0.0645 (0.0656)
loss_giou_unscaled: 0.1064 (0.1047) cardinality_error_unscaled: 279.2500
(274.2727) loss_ce_0_unscaled: 0.6602 (0.6831) loss_bbox_0_unscaled: 0.0491
(0.0519) loss_giou_0_unscaled: 0.0791 (0.0917) cardinality_error_0_unscaled:
225.7500 (231.5909) loss_ce_1_unscaled: 0.5039 (0.5506) loss_bbox_1_unscaled:
0.0477 (0.0576) loss_giou_1_unscaled: 0.0866 (0.0985)
cardinality_error_1_unscaled: 272.2500 (263.7045) loss_ce_enc_unscaled: 0.8945
(0.9087) loss_bbox_enc_unscaled: 0.0833 (0.0849) loss_giou_enc_unscaled:
0.1148 (0.1305) cardinality_error_enc_unscaled: 170.5000 (161.6136) time:
0.3350 data: 0.0464 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.8276 (4.6948) loss_ce:
0.4141 (0.4588) loss_bbox: 0.2828 (0.3334) loss_giou: 0.1635 (0.1972)
loss_ce_0: 0.6211 (0.6509) loss_bbox_0: 0.2523 (0.2911) loss_giou_0: 0.1720
(0.1831) loss_ce_1: 0.4316 (0.5026) loss_bbox_1: 0.2606 (0.3013) loss_giou_1:
0.1459 (0.1882) loss_ce_enc: 0.8789 (0.9113) loss_bbox_enc: 0.4045 (0.4254)
loss_giou_enc: 0.2282 (0.2517) loss_ce_unscaled: 0.4141 (0.4588)

class_error_unscaled: 0.0000 (5.8050) loss_bbox_unscaled: 0.0566 (0.0667)
loss_giou_unscaled: 0.0818 (0.0986) cardinality_error_unscaled: 279.2500
(269.9167) loss_ce_0_unscaled: 0.6211 (0.6509) loss_bbox_0_unscaled: 0.0505
(0.0582) loss_giou_0_unscaled: 0.0860 (0.0915) cardinality_error_0_unscaled:
225.7500 (226.1190) loss_ce_1_unscaled: 0.4316 (0.5026) loss_bbox_1_unscaled:
0.0521 (0.0603) loss_giou_1_unscaled: 0.0729 (0.0941)
cardinality_error_1_unscaled: 272.2500 (257.9762) loss_ce_enc_unscaled: 0.8789
(0.9113) loss_bbox_enc_unscaled: 0.0809 (0.0851) loss_giou_enc_unscaled:
0.1141 (0.1258) cardinality_error_enc_unscaled: 170.5000 (164.4524) time:
0.3026 data: 0.0191 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.2646 (4.5134) loss_ce:
0.3770 (0.4486) loss_bbox: 0.2401 (0.2981) loss_giou: 0.1485 (0.1869)
loss_ce_0: 0.5859 (0.6463) loss_bbox_0: 0.2363 (0.2646) loss_giou_0: 0.1421
(0.1757) loss_ce_1: 0.4727 (0.4899) loss_bbox_1: 0.2255 (0.2712) loss_giou_1:
0.1402 (0.1805) loss_ce_enc: 0.8438 (0.8742) loss_bbox_enc: 0.4037 (0.4210)
loss_giou_enc: 0.2296 (0.2564) loss_ce_unscaled: 0.3770 (0.4486)
class_error_unscaled: 0.0000 (4.5776) loss_bbox_unscaled: 0.0480 (0.0596)
loss_giou_unscaled: 0.0743 (0.0934) cardinality_error_unscaled: 295.7500
(275.0000) loss_ce_0_unscaled: 0.5859 (0.6463) loss_bbox_0_unscaled: 0.0473
(0.0529) loss_giou_0_unscaled: 0.0711 (0.0879) cardinality_error_0_unscaled:
258.2500 (235.6613) loss_ce_1_unscaled: 0.4727 (0.4899) loss_bbox_1_unscaled:
0.0451 (0.0542) loss_giou_1_unscaled: 0.0701 (0.0902)
cardinality_error_1_unscaled: 288.5000 (264.1452) loss_ce_enc_unscaled: 0.8438
(0.8742) loss_bbox_enc_unscaled: 0.0807 (0.0842) loss_giou_enc_unscaled:
0.1148 (0.1282) cardinality_error_enc_unscaled: 200.0000 (180.9032) time:
0.3214 data: 0.0190 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.1872 (4.5672) loss_ce:
0.4297 (0.4643) loss_bbox: 0.2261 (0.2919) loss_giou: 0.1741 (0.1899)
loss_ce_0: 0.6094 (0.6469) loss_bbox_0: 0.2424 (0.2778) loss_giou_0: 0.1590
(0.1872) loss_ce_1: 0.4727 (0.5002) loss_bbox_1: 0.2378 (0.2745) loss_giou_1:
0.1484 (0.1875) loss_ce_enc: 0.7461 (0.8587) loss_bbox_enc: 0.3887 (0.4243)
loss_giou_enc: 0.2621 (0.2641) loss_ce_unscaled: 0.4297 (0.4643)
class_error_unscaled: 0.0000 (4.3734) loss_bbox_unscaled: 0.0452 (0.0584)
loss_giou_unscaled: 0.0871 (0.0949) cardinality_error_unscaled: 295.7500
(278.7829) loss_ce_0_unscaled: 0.6094 (0.6469) loss_bbox_0_unscaled: 0.0485
(0.0556) loss_giou_0_unscaled: 0.0795 (0.0936) cardinality_error_0_unscaled:
258.5000 (241.6579) loss_ce_1_unscaled: 0.4727 (0.5002) loss_bbox_1_unscaled:
0.0476 (0.0549) loss_giou_1_unscaled: 0.0742 (0.0937)
cardinality_error_1_unscaled: 288.7500 (268.7697) loss_ce_enc_unscaled: 0.7461
(0.8587) loss_bbox_enc_unscaled: 0.0777 (0.0849) loss_giou_enc_unscaled:
0.1311 (0.1320) cardinality_error_enc_unscaled: 224.2500 (190.8553) time:
0.3088 data: 0.0172 max mem: 9284
Test: Total time: 0:00:12 (0.3182 s / it)
Averaged stats: class_error: 0.00 loss: 4.1872 (4.5672) loss_ce: 0.4297
(0.4643) loss_bbox: 0.2261 (0.2919) loss_giou: 0.1741 (0.1899) loss_ce_0:
0.6094 (0.6469) loss_bbox_0: 0.2424 (0.2778) loss_giou_0: 0.1590 (0.1872)
loss_ce_1: 0.4727 (0.5002) loss_bbox_1: 0.2378 (0.2745) loss_giou_1: 0.1484
(0.1875) loss_ce_enc: 0.7461 (0.8587) loss_bbox_enc: 0.3887 (0.4243)

```
loss_giou_enc: 0.2621 (0.2641)  loss_ce_unscaled: 0.4297 (0.4643)
class_error_unscaled: 0.0000 (4.3734)  loss_bbox_unscaled: 0.0452 (0.0584)
loss_giou_unscaled: 0.0871 (0.0949)  cardinality_error_unscaled: 295.7500
(278.7829)  loss_ce_0_unscaled: 0.6094 (0.6469)  loss_bbox_0_unscaled: 0.0485
(0.0556)  loss_giou_0_unscaled: 0.0795 (0.0936)  cardinality_error_0_unscaled:
258.5000 (241.6579)  loss_ce_1_unscaled: 0.4727 (0.5002)  loss_bbox_1_unscaled:
0.0476 (0.0549)  loss_giou_1_unscaled: 0.0742 (0.0937)
cardinality_error_1_unscaled: 288.7500 (268.7697)  loss_ce_enc_unscaled: 0.7461
(0.8587)  loss_bbox_enc_unscaled: 0.0777 (0.0849)  loss_giou_enc_unscaled:
0.1311 (0.1320)  cardinality_error_enc_unscaled: 224.2500 (190.8553)
Accumulating evaluation results…
DONE (t=0.28s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.792
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.955
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.869
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.414
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.800
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.637
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.864
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.894
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.667
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.899
Grad accum steps:  4
Total batch size:  16
LENGTH OF DATA LOADER: 87
Epoch: [7]  [ 0/87]  eta: 0:12:21  lr: 0.000100  class_error: 0.00  loss: 4.6510
(4.6510)  loss_ce: 0.3910 (0.3910)  loss_bbox: 0.3275 (0.3275)  loss_giou:
0.1316 (0.1316)  loss_ce_0: 0.5847 (0.5847)  loss_bbox_0: 0.3868 (0.3868)
loss_giou_0: 0.1514 (0.1514)  loss_ce_1: 0.3880 (0.3880)  loss_bbox_1: 0.3647
(0.3647)  loss_giou_1: 0.1555 (0.1555)  loss_ce_enc: 0.8416 (0.8416)
loss_bbox_enc: 0.6398 (0.6398)  loss_giou_enc: 0.2884 (0.2884)
loss_ce_unscaled: 0.3910 (0.3910)  class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0655 (0.0655)  loss_giou_unscaled: 0.0658 (0.0658)
cardinality_error_unscaled: 3347.5000 (3347.5000)  loss_ce_0_unscaled: 0.5847
(0.5847)  loss_bbox_0_unscaled: 0.0774 (0.0774)  loss_giou_0_unscaled: 0.0757
(0.0757)  cardinality_error_0_unscaled: 2459.5000 (2459.5000)
loss_ce_1_unscaled: 0.3880 (0.3880)  loss_bbox_1_unscaled: 0.0729 (0.0729)
loss_giou_1_unscaled: 0.0778 (0.0778)  cardinality_error_1_unscaled: 2925.2500
(2925.2500)  loss_ce_enc_unscaled: 0.8416 (0.8416)  loss_bbox_enc_unscaled:
0.1280 (0.1280)  loss_giou_enc_unscaled: 0.1442 (0.1442)
cardinality_error_enc_unscaled: 2173.7500 (2173.7500)  time: 8.5199  data:
1.2033  max mem: 9284
Epoch: [7]  [10/87]  eta: 0:09:11  lr: 0.000100  class_error: 0.00  loss: 4.5463
(4.3824)  loss_ce: 0.3556 (0.3816)  loss_bbox: 0.3302 (0.3289)  loss_giou:
0.1316 (0.1438)  loss_ce_0: 0.5150 (0.5344)  loss_bbox_0: 0.3384 (0.3568)
```

loss_giou_0: 0.1322 (0.1583) loss_ce_1: 0.3769 (0.3923) loss_bbox_1: 0.3443
(0.3216) loss_giou_1: 0.1555 (0.1428) loss_ce_enc: 0.7745 (0.7902)
loss_bbox_enc: 0.6130 (0.5810) loss_giou_enc: 0.2364 (0.2507)
loss_ce_unscaled: 0.3556 (0.3816) class_error_unscaled: 0.0000 (1.8182)
loss_bbox_unscaled: 0.0660 (0.0658) loss_giou_unscaled: 0.0658 (0.0719)
cardinality_error_unscaled: 3750.2500 (3640.5227) loss_ce_0_unscaled: 0.5150
(0.5344) loss_bbox_0_unscaled: 0.0677 (0.0714) loss_giou_0_unscaled: 0.0661
(0.0792) cardinality_error_0_unscaled: 3001.5000 (3130.6364)
loss_ce_1_unscaled: 0.3769 (0.3923) loss_bbox_1_unscaled: 0.0689 (0.0643)
loss_giou_1_unscaled: 0.0778 (0.0714) cardinality_error_1_unscaled: 3621.0000
(3487.0000) loss_ce_enc_unscaled: 0.7745 (0.7902) loss_bbox_enc_unscaled:
0.1226 (0.1162) loss_giou_enc_unscaled: 0.1182 (0.1253)
cardinality_error_enc_unscaled: 2875.2500 (2956.8409) time: 7.1582 data:
0.1492 max mem: 9284
Epoch: [7] [20/87] eta: 0:07:57 lr: 0.000100 class_error: -0.00 loss:
4.3186 (4.3189) loss_ce: 0.3556 (0.3975) loss_bbox: 0.2733 (0.2997)
loss_giou: 0.1403 (0.1465) loss_ce_0: 0.5241 (0.5535) loss_bbox_0: 0.2885
(0.3235) loss_giou_0: 0.1515 (0.1581) loss_ce_1: 0.3769 (0.4026) loss_bbox_1:
0.2699 (0.2958) loss_giou_1: 0.1430 (0.1464) loss_ce_enc: 0.7635 (0.7745)
loss_bbox_enc: 0.5531 (0.5589) loss_giou_enc: 0.2532 (0.2619)
loss_ce_unscaled: 0.3556 (0.3975) class_error_unscaled: 0.0000 (0.9524)
loss_bbox_unscaled: 0.0547 (0.0599) loss_giou_unscaled: 0.0702 (0.0733)
cardinality_error_unscaled: 3872.2500 (3673.5714) loss_ce_0_unscaled: 0.5241
(0.5535) loss_bbox_0_unscaled: 0.0577 (0.0647) loss_giou_0_unscaled: 0.0757
(0.0790) cardinality_error_0_unscaled: 3359.7500 (3198.0714)
loss_ce_1_unscaled: 0.3769 (0.4026) loss_bbox_1_unscaled: 0.0540 (0.0592)
loss_giou_1_unscaled: 0.0715 (0.0732) cardinality_error_1_unscaled: 3809.7500
(3561.2024) loss_ce_enc_unscaled: 0.7635 (0.7745) loss_bbox_enc_unscaled:
0.1106 (0.1118) loss_giou_enc_unscaled: 0.1266 (0.1309)
cardinality_error_enc_unscaled: 3146.2500 (3067.0238) time: 7.0552 data:
0.0469 max mem: 9284
Epoch: [7] [30/87] eta: 0:06:47 lr: 0.000100 class_error: -0.00 loss:
4.3186 (4.3848) loss_ce: 0.3724 (0.4073) loss_bbox: 0.2474 (0.2986)
loss_giou: 0.1713 (0.1576) loss_ce_0: 0.5943 (0.5663) loss_bbox_0: 0.2698
(0.3219) loss_giou_0: 0.1674 (0.1684) loss_ce_1: 0.4282 (0.4205) loss_bbox_1:
0.2699 (0.3011) loss_giou_1: 0.1583 (0.1596) loss_ce_enc: 0.7635 (0.7727)
loss_bbox_enc: 0.5166 (0.5406) loss_giou_enc: 0.2765 (0.2702)
loss_ce_unscaled: 0.3724 (0.4073) class_error_unscaled: 0.0000 (0.8437)
loss_bbox_unscaled: 0.0495 (0.0597) loss_giou_unscaled: 0.0857 (0.0788)
cardinality_error_unscaled: 3877.2500 (3678.5323) loss_ce_0_unscaled: 0.5943
(0.5663) loss_bbox_0_unscaled: 0.0540 (0.0644) loss_giou_0_unscaled: 0.0837
(0.0842) cardinality_error_0_unscaled: 3374.2500 (3241.2500)
loss_ce_1_unscaled: 0.4282 (0.4205) loss_bbox_1_unscaled: 0.0540 (0.0602)
loss_giou_1_unscaled: 0.0791 (0.0798) cardinality_error_1_unscaled: 3809.7500
(3596.4516) loss_ce_enc_unscaled: 0.7635 (0.7727) loss_bbox_enc_unscaled:
0.1033 (0.1081) loss_giou_enc_unscaled: 0.1383 (0.1351)
cardinality_error_enc_unscaled: 3326.0000 (3128.9516) time: 7.1367 data:
0.0498 max mem: 9284

Epoch: [7] [40/87] eta: 0:05:35 lr: 0.000100 class_error: 0.00 loss: 4.5802
(4.4883) loss_ce: 0.4421 (0.4192) loss_bbox: 0.2472 (0.3027) loss_giou:
0.1713 (0.1632) loss_ce_0: 0.6275 (0.5781) loss_bbox_0: 0.3110 (0.3359)
loss_giou_0: 0.1820 (0.1765) loss_ce_1: 0.4595 (0.4355) loss_bbox_1: 0.2742
(0.3123) loss_giou_1: 0.1806 (0.1667) loss_ce_enc: 0.8114 (0.7758)
loss_bbox_enc: 0.5166 (0.5475) loss_giou_enc: 0.2657 (0.2749)
loss_ce_unscaled: 0.4421 (0.4192) class_error_unscaled: 0.0000 (0.6692)
loss_bbox_unscaled: 0.0494 (0.0605) loss_giou_unscaled: 0.0857 (0.0816)
cardinality_error_unscaled: 3793.7500 (3688.9878) loss_ce_0_unscaled: 0.6275
(0.5781) loss_bbox_0_unscaled: 0.0622 (0.0672) loss_giou_0_unscaled: 0.0910
(0.0882) cardinality_error_0_unscaled: 3374.2500 (3300.4207)
loss_ce_1_unscaled: 0.4595 (0.4355) loss_bbox_1_unscaled: 0.0548 (0.0625)
loss_giou_1_unscaled: 0.0903 (0.0834) cardinality_error_1_unscaled: 3724.7500
(3619.0732) loss_ce_enc_unscaled: 0.8114 (0.7758) loss_bbox_enc_unscaled:
0.1033 (0.1095) loss_giou_enc_unscaled: 0.1328 (0.1374)
cardinality_error_enc_unscaled: 3326.0000 (3172.1707) time: 7.1391 data:
0.0493 max mem: 9284
Epoch: [7] [50/87] eta: 0:04:24 lr: 0.000100 class_error: 0.00 loss: 4.4506
(4.3966) loss_ce: 0.4114 (0.4124) loss_bbox: 0.2425 (0.2916) loss_giou:
0.1517 (0.1643) loss_ce_0: 0.5956 (0.5771) loss_bbox_0: 0.2667 (0.3159)
loss_giou_0: 0.1692 (0.1736) loss_ce_1: 0.4210 (0.4285) loss_bbox_1: 0.2512
(0.2973) loss_giou_1: 0.1597 (0.1665) loss_ce_enc: 0.7326 (0.7678)
loss_bbox_enc: 0.5169 (0.5297) loss_giou_enc: 0.2604 (0.2718)
loss_ce_unscaled: 0.4114 (0.4124) class_error_unscaled: 0.0000 (0.5380)
loss_bbox_unscaled: 0.0485 (0.0583) loss_giou_unscaled: 0.0758 (0.0821)
cardinality_error_unscaled: 3862.7500 (3679.4216) loss_ce_0_unscaled: 0.5956
(0.5771) loss_bbox_0_unscaled: 0.0533 (0.0632) loss_giou_0_unscaled: 0.0846
(0.0868) cardinality_error_0_unscaled: 3495.5000 (3315.0049)
loss_ce_1_unscaled: 0.4210 (0.4285) loss_bbox_1_unscaled: 0.0502 (0.0595)
loss_giou_1_unscaled: 0.0799 (0.0832) cardinality_error_1_unscaled: 3783.7500
(3612.3186) loss_ce_enc_unscaled: 0.7326 (0.7678) loss_bbox_enc_unscaled:
0.1034 (0.1059) loss_giou_enc_unscaled: 0.1302 (0.1359)
cardinality_error_enc_unscaled: 3518.0000 (3209.6078) time: 7.1389 data:
0.0492 max mem: 9284
Epoch: [7] [60/87] eta: 0:03:12 lr: 0.000100 class_error: 0.00 loss: 4.0319
(4.4134) loss_ce: 0.3991 (0.4183) loss_bbox: 0.2575 (0.2936) loss_giou:
0.1622 (0.1632) loss_ce_0: 0.5802 (0.5789) loss_bbox_0: 0.2718 (0.3181)
loss_giou_0: 0.1692 (0.1733) loss_ce_1: 0.3785 (0.4346) loss_bbox_1: 0.2556
(0.2996) loss_giou_1: 0.1597 (0.1650) loss_ce_enc: 0.7168 (0.7644)
loss_bbox_enc: 0.5169 (0.5321) loss_giou_enc: 0.2604 (0.2724)
loss_ce_unscaled: 0.3991 (0.4183) class_error_unscaled: 0.0000 (0.4498)
loss_bbox_unscaled: 0.0515 (0.0587) loss_giou_unscaled: 0.0811 (0.0816)
cardinality_error_unscaled: 3852.2500 (3661.6148) loss_ce_0_unscaled: 0.5802
(0.5789) loss_bbox_0_unscaled: 0.0544 (0.0636) loss_giou_0_unscaled: 0.0846
(0.0866) cardinality_error_0_unscaled: 3492.5000 (3304.6311)
loss_ce_1_unscaled: 0.3785 (0.4346) loss_bbox_1_unscaled: 0.0511 (0.0599)
loss_giou_1_unscaled: 0.0799 (0.0825) cardinality_error_1_unscaled: 3781.0000
(3591.2541) loss_ce_enc_unscaled: 0.7168 (0.7644) loss_bbox_enc_unscaled:

68

0.1034 (0.1064) loss_giou_enc_unscaled: 0.1302 (0.1362)
cardinality_error_enc_unscaled: 3462.2500 (3191.0369) time: 7.1311 data:
0.0491 max mem: 9284
Epoch: [7] [70/87] eta: 0:02:01 lr: 0.000100 class_error: 0.00 loss: 4.3092
(4.3982) loss_ce: 0.3941 (0.4122) loss_bbox: 0.2609 (0.2917) loss_giou:
0.1619 (0.1657) loss_ce_0: 0.5802 (0.5816) loss_bbox_0: 0.2980 (0.3130)
loss_giou_0: 0.1740 (0.1748) loss_ce_1: 0.4366 (0.4313) loss_bbox_1: 0.2802
(0.2967) loss_giou_1: 0.1575 (0.1674) loss_ce_enc: 0.7253 (0.7631)
loss_bbox_enc: 0.5192 (0.5268) loss_giou_enc: 0.2753 (0.2739)
loss_ce_unscaled: 0.3941 (0.4122) class_error_unscaled: 0.0000 (0.4000)
loss_bbox_unscaled: 0.0522 (0.0583) loss_giou_unscaled: 0.0810 (0.0828)
cardinality_error_unscaled: 3886.2500 (3686.9648) loss_ce_0_unscaled: 0.5802
(0.5816) loss_bbox_0_unscaled: 0.0596 (0.0626) loss_giou_0_unscaled: 0.0870
(0.0874) cardinality_error_0_unscaled: 3715.7500 (3347.2711)
loss_ce_1_unscaled: 0.4366 (0.4313) loss_bbox_1_unscaled: 0.0560 (0.0593)
loss_giou_1_unscaled: 0.0788 (0.0837) cardinality_error_1_unscaled: 3861.2500
(3623.8768) loss_ce_enc_unscaled: 0.7253 (0.7631) loss_bbox_enc_unscaled:
0.1038 (0.1054) loss_giou_enc_unscaled: 0.1377 (0.1370)
cardinality_error_enc_unscaled: 3677.7500 (3250.0352) time: 7.0849 data:
0.0490 max mem: 9284
Epoch: [7] [80/87] eta: 0:00:49 lr: 0.000100 class_error: -0.00 loss:
4.5590 (4.4419) loss_ce: 0.3966 (0.4154) loss_bbox: 0.2718 (0.2996)
loss_giou: 0.1995 (0.1732) loss_ce_0: 0.5572 (0.5838) loss_bbox_0: 0.2920
(0.3174) loss_giou_0: 0.2025 (0.1807) loss_ce_1: 0.4366 (0.4346) loss_bbox_1:
0.2689 (0.3026) loss_giou_1: 0.2032 (0.1739) loss_ce_enc: 0.7126 (0.7588)
loss_bbox_enc: 0.4421 (0.5219) loss_giou_enc: 0.3009 (0.2798)
loss_ce_unscaled: 0.3966 (0.4154) class_error_unscaled: 0.0000 (0.3506)
loss_bbox_unscaled: 0.0544 (0.0599) loss_giou_unscaled: 0.0998 (0.0866)
cardinality_error_unscaled: 3888.0000 (3692.8488) loss_ce_0_unscaled: 0.5572
(0.5838) loss_bbox_0_unscaled: 0.0584 (0.0635) loss_giou_0_unscaled: 0.1013
(0.0903) cardinality_error_0_unscaled: 3747.7500 (3360.5957)
loss_ce_1_unscaled: 0.4366 (0.4346) loss_bbox_1_unscaled: 0.0538 (0.0605)
loss_giou_1_unscaled: 0.1016 (0.0870) cardinality_error_1_unscaled: 3874.2500
(3636.6574) loss_ce_enc_unscaled: 0.7126 (0.7588) loss_bbox_enc_unscaled:
0.0884 (0.1044) loss_giou_enc_unscaled: 0.1504 (0.1399)
cardinality_error_enc_unscaled: 3728.2500 (3280.7809) time: 7.1399 data:
0.0489 max mem: 9284
Epoch: [7] [86/87] eta: 0:00:07 lr: 0.000100 class_error: -0.00 loss:
4.7427 (4.4410) loss_ce: 0.4140 (0.4122) loss_bbox: 0.2781 (0.2988)
loss_giou: 0.1995 (0.1731) loss_ce_0: 0.5605 (0.5831) loss_bbox_0: 0.3072
(0.3157) loss_giou_0: 0.2025 (0.1799) loss_ce_1: 0.4442 (0.4328) loss_bbox_1:
0.2782 (0.3014) loss_giou_1: 0.2044 (0.1737) loss_ce_enc: 0.7119 (0.7582)
loss_bbox_enc: 0.4695 (0.5292) loss_giou_enc: 0.3276 (0.2830)
loss_ce_unscaled: 0.4140 (0.4122) class_error_unscaled: 0.0000 (0.4527)
loss_bbox_unscaled: 0.0556 (0.0598) loss_giou_unscaled: 0.0998 (0.0866)
cardinality_error_unscaled: 3891.7500 (3706.6983) loss_ce_0_unscaled: 0.5605
(0.5831) loss_bbox_0_unscaled: 0.0614 (0.0631) loss_giou_0_unscaled: 0.1013
(0.0900) cardinality_error_0_unscaled: 3784.0000 (3393.3822)

loss_ce_1_unscaled: 0.4442 (0.4328) loss_bbox_1_unscaled: 0.0556 (0.0603)
loss_giou_1_unscaled: 0.1022 (0.0868) cardinality_error_1_unscaled: 3875.2500
(3653.4052) loss_ce_enc_unscaled: 0.7119 (0.7582) loss_bbox_enc_unscaled:
0.0939 (0.1058) loss_giou_enc_unscaled: 0.1638 (0.1415)
cardinality_error_enc_unscaled: 3756.7500 (3317.4425) time: 7.0036 data:
0.0489 max mem: 9284
Epoch: [7] Total time: 0:10:17 (7.0952 s / it)
Averaged stats: lr: 0.000100 class_error: -0.00 loss: 4.7427 (4.4410)
loss_ce: 0.4140 (0.4122) loss_bbox: 0.2781 (0.2988) loss_giou: 0.1995 (0.1731)
loss_ce_0: 0.5605 (0.5831) loss_bbox_0: 0.3072 (0.3157) loss_giou_0: 0.2025
(0.1799) loss_ce_1: 0.4442 (0.4328) loss_bbox_1: 0.2782 (0.3014) loss_giou_1:
0.2044 (0.1737) loss_ce_enc: 0.7119 (0.7582) loss_bbox_enc: 0.4695 (0.5292)
loss_giou_enc: 0.3276 (0.2830) loss_ce_unscaled: 0.4140 (0.4122)
class_error_unscaled: 0.0000 (0.4527) loss_bbox_unscaled: 0.0556 (0.0598)
loss_giou_unscaled: 0.0998 (0.0866) cardinality_error_unscaled: 3891.7500
(3706.6983) loss_ce_0_unscaled: 0.5605 (0.5831) loss_bbox_0_unscaled: 0.0614
(0.0631) loss_giou_0_unscaled: 0.1013 (0.0900) cardinality_error_0_unscaled:
3784.0000 (3393.3822) loss_ce_1_unscaled: 0.4442 (0.4328)
loss_bbox_1_unscaled: 0.0556 (0.0603) loss_giou_1_unscaled: 0.1022 (0.0868)
cardinality_error_1_unscaled: 3875.2500 (3653.4052) loss_ce_enc_unscaled:
0.7119 (0.7582) loss_bbox_enc_unscaled: 0.0939 (0.1058)
loss_giou_enc_unscaled: 0.1638 (0.1415) cardinality_error_enc_unscaled:
3756.7500 (3317.4425)
Test: [0/38] eta: 0:00:29 class_error: 0.00 loss: 5.5144 (5.5144) loss_ce:
0.5234 (0.5234) loss_bbox: 0.2918 (0.2918) loss_giou: 0.1578 (0.1578)
loss_ce_0: 0.8438 (0.8438) loss_bbox_0: 0.3989 (0.3989) loss_giou_0: 0.2048
(0.2048) loss_ce_1: 0.5195 (0.5195) loss_bbox_1: 0.2731 (0.2731) loss_giou_1:
0.1540 (0.1540) loss_ce_enc: 1.0156 (1.0156) loss_bbox_enc: 0.7883 (0.7883)
loss_giou_enc: 0.3433 (0.3433) loss_ce_unscaled: 0.5234 (0.5234)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0584 (0.0584)
loss_giou_unscaled: 0.0789 (0.0789) cardinality_error_unscaled: 261.2500
(261.2500) loss_ce_0_unscaled: 0.8438 (0.8438) loss_bbox_0_unscaled: 0.0798
(0.0798) loss_giou_0_unscaled: 0.1024 (0.1024) cardinality_error_0_unscaled:
196.2500 (196.2500) loss_ce_1_unscaled: 0.5195 (0.5195) loss_bbox_1_unscaled:
0.0546 (0.0546) loss_giou_1_unscaled: 0.0770 (0.0770)
cardinality_error_1_unscaled: 249.7500 (249.7500) loss_ce_enc_unscaled: 1.0156
(1.0156) loss_bbox_enc_unscaled: 0.1577 (0.1577) loss_giou_enc_unscaled:
0.1717 (0.1717) cardinality_error_enc_unscaled: 217.7500 (217.7500) time:
0.7890 data: 0.4306 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 28.57 loss: 5.6648 (5.6834)
loss_ce: 0.7266 (0.6696) loss_bbox: 0.3174 (0.3376) loss_giou: 0.2321 (0.2120)
loss_ce_0: 0.7734 (0.7660) loss_bbox_0: 0.3989 (0.4041) loss_giou_0: 0.2663
(0.2383) loss_ce_1: 0.7031 (0.6722) loss_bbox_1: 0.3407 (0.3429) loss_giou_1:
0.2207 (0.2100) loss_ce_enc: 0.9648 (0.9474) loss_bbox_enc: 0.5881 (0.5644)
loss_giou_enc: 0.3431 (0.3189) loss_ce_unscaled: 0.7266 (0.6696)
class_error_unscaled: 0.0000 (6.9156) loss_bbox_unscaled: 0.0635 (0.0675)
loss_giou_unscaled: 0.1160 (0.1060) cardinality_error_unscaled: 290.2500
(278.6818) loss_ce_0_unscaled: 0.7734 (0.7660) loss_bbox_0_unscaled: 0.0798

(0.0808) loss_giou_0_unscaled: 0.1332 (0.1191) cardinality_error_0_unscaled: 235.2500 (248.4318) loss_ce_1_unscaled: 0.7031 (0.6722) loss_bbox_1_unscaled: 0.0681 (0.0686) loss_giou_1_unscaled: 0.1103 (0.1050) cardinality_error_1_unscaled: 289.2500 (272.8636) loss_ce_enc_unscaled: 0.9648 (0.9474) loss_bbox_enc_unscaled: 0.1176 (0.1129) loss_giou_enc_unscaled: 0.1715 (0.1595) cardinality_error_enc_unscaled: 243.7500 (245.7727) time: 0.3248 data: 0.0560 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.5671 (5.2666) loss_ce: 0.4961 (0.5928) loss_bbox: 0.3174 (0.3500) loss_giou: 0.2141 (0.2059) loss_ce_0: 0.7266 (0.7148) loss_bbox_0: 0.3262 (0.3494) loss_giou_0: 0.2098 (0.2078) loss_ce_1: 0.5352 (0.5901) loss_bbox_1: 0.2829 (0.3397) loss_giou_1: 0.2040 (0.1989) loss_ce_enc: 0.8359 (0.8865) loss_bbox_enc: 0.5140 (0.5314) loss_giou_enc: 0.2636 (0.2992) loss_ce_unscaled: 0.4961 (0.5928) class_error_unscaled: 0.0000 (6.8764) loss_bbox_unscaled: 0.0635 (0.0700) loss_giou_unscaled: 0.1071 (0.1030) cardinality_error_unscaled: 290.2500 (274.8690) loss_ce_0_unscaled: 0.7266 (0.7148) loss_bbox_0_unscaled: 0.0652 (0.0699) loss_giou_0_unscaled: 0.1049 (0.1039) cardinality_error_0_unscaled: 235.2500 (244.5119) loss_ce_1_unscaled: 0.5352 (0.5901) loss_bbox_1_unscaled: 0.0566 (0.0679) loss_giou_1_unscaled: 0.1020 (0.0994) cardinality_error_1_unscaled: 289.2500 (270.2976) loss_ce_enc_unscaled: 0.8359 (0.8865) loss_bbox_enc_unscaled: 0.1028 (0.1063) loss_giou_enc_unscaled: 0.1318 (0.1496) cardinality_error_enc_unscaled: 228.5000 (232.9524) time: 0.2770 data: 0.0179 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.4444 (5.0376) loss_ce: 0.4629 (0.5659) loss_bbox: 0.2589 (0.3165) loss_giou: 0.1498 (0.1967) loss_ce_0: 0.5938 (0.6978) loss_bbox_0: 0.2938 (0.3268) loss_giou_0: 0.1631 (0.2011) loss_ce_1: 0.4648 (0.5645) loss_bbox_1: 0.2502 (0.3165) loss_giou_1: 0.1704 (0.1932) loss_ce_enc: 0.7695 (0.8464) loss_bbox_enc: 0.4482 (0.5147) loss_giou_enc: 0.2641 (0.2975) loss_ce_unscaled: 0.4629 (0.5659) class_error_unscaled: 0.0000 (5.5966) loss_bbox_unscaled: 0.0518 (0.0633) loss_giou_unscaled: 0.0749 (0.0983) cardinality_error_unscaled: 297.0000 (278.7258) loss_ce_0_unscaled: 0.5938 (0.6978) loss_bbox_0_unscaled: 0.0588 (0.0654) loss_giou_0_unscaled: 0.0815 (0.1005) cardinality_error_0_unscaled: 284.2500 (254.6774) loss_ce_1_unscaled: 0.4648 (0.5645) loss_bbox_1_unscaled: 0.0500 (0.0633) loss_giou_1_unscaled: 0.0852 (0.0966) cardinality_error_1_unscaled: 292.7500 (274.7177) loss_ce_enc_unscaled: 0.7695 (0.8464) loss_bbox_enc_unscaled: 0.0896 (0.1029) loss_giou_enc_unscaled: 0.1321 (0.1488) cardinality_error_enc_unscaled: 269.0000 (245.9274) time: 0.3045 data: 0.0177 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.3282 (5.1233) loss_ce: 0.4629 (0.5743) loss_bbox: 0.2496 (0.3239) loss_giou: 0.1733 (0.2066) loss_ce_0: 0.5820 (0.6999) loss_bbox_0: 0.2827 (0.3346) loss_giou_0: 0.1997 (0.2109) loss_ce_1: 0.4648 (0.5780) loss_bbox_1: 0.2599 (0.3221) loss_giou_1: 0.1983 (0.2018) loss_ce_enc: 0.7461 (0.8318) loss_bbox_enc: 0.4740 (0.5272) loss_giou_enc: 0.3123 (0.3123) loss_ce_unscaled: 0.4629 (0.5743) class_error_unscaled: 0.0000 (5.6465) loss_bbox_unscaled: 0.0499 (0.0648) loss_giou_unscaled: 0.0867 (0.1033) cardinality_error_unscaled: 297.0000 (282.0066) loss_ce_0_unscaled: 0.5820 (0.6999) loss_bbox_0_unscaled: 0.0565

(0.0669) loss_giou_0_unscaled: 0.0999 (0.1054) cardinality_error_0_unscaled: 287.2500 (261.2434) loss_ce_1_unscaled: 0.4648 (0.5780) loss_bbox_1_unscaled: 0.0520 (0.0644) loss_giou_1_unscaled: 0.0991 (0.1009) cardinality_error_1_unscaled: 294.0000 (278.3355) loss_ce_enc_unscaled: 0.7461 (0.8318) loss_bbox_enc_unscaled: 0.0948 (0.1054) loss_giou_enc_unscaled: 0.1562 (0.1561) cardinality_error_enc_unscaled: 285.5000 (254.3947) time: 0.3041 data: 0.0174 max mem: 9284
Test: Total time: 0:00:11 (0.3084 s / it)
Averaged stats: class_error: 0.00 loss: 4.3282 (5.1233) loss_ce: 0.4629 (0.5743) loss_bbox: 0.2496 (0.3239) loss_giou: 0.1733 (0.2066) loss_ce_0: 0.5820 (0.6999) loss_bbox_0: 0.2827 (0.3346) loss_giou_0: 0.1997 (0.2109) loss_ce_1: 0.4648 (0.5780) loss_bbox_1: 0.2599 (0.3221) loss_giou_1: 0.1983 (0.2018) loss_ce_enc: 0.7461 (0.8318) loss_bbox_enc: 0.4740 (0.5272) loss_giou_enc: 0.3123 (0.3123) loss_ce_unscaled: 0.4629 (0.5743) class_error_unscaled: 0.0000 (5.6465) loss_bbox_unscaled: 0.0499 (0.0648) loss_giou_unscaled: 0.0867 (0.1033) cardinality_error_unscaled: 297.0000 (282.0066) loss_ce_0_unscaled: 0.5820 (0.6999) loss_bbox_0_unscaled: 0.0565 (0.0669) loss_giou_0_unscaled: 0.0999 (0.1054) cardinality_error_0_unscaled: 287.2500 (261.2434) loss_ce_1_unscaled: 0.4648 (0.5780) loss_bbox_1_unscaled: 0.0520 (0.0644) loss_giou_1_unscaled: 0.0991 (0.1009) cardinality_error_1_unscaled: 294.0000 (278.3355) loss_ce_enc_unscaled: 0.7461 (0.8318) loss_bbox_enc_unscaled: 0.0948 (0.1054) loss_giou_enc_unscaled: 0.1562 (0.1561) cardinality_error_enc_unscaled: 285.5000 (254.3947)
Accumulating evaluation results…
DONE (t=0.39s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.746
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.914
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.830
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.444
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.754
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.613
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.858
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.882
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.647
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.886
Test: [0/38] eta: 0:00:30 class_error: 0.00 loss: 3.8400 (3.8400) loss_ce: 0.2754 (0.2754) loss_bbox: 0.2007 (0.2007) loss_giou: 0.1298 (0.1298) loss_ce_0: 0.4746 (0.4746) loss_bbox_0: 0.2425 (0.2425) loss_giou_0: 0.1402 (0.1402) loss_ce_1: 0.3164 (0.3164) loss_bbox_1: 0.2203 (0.2203) loss_giou_1: 0.1359 (0.1359) loss_ce_enc: 0.8789 (0.8789) loss_bbox_enc: 0.5408 (0.5408) loss_giou_enc: 0.2844 (0.2844) loss_ce_unscaled: 0.2754 (0.2754) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0401 (0.0401) loss_giou_unscaled: 0.0649 (0.0649) cardinality_error_unscaled: 254.7500 (254.7500) loss_ce_0_unscaled: 0.4746 (0.4746) loss_bbox_0_unscaled: 0.0485 (0.0485) loss_giou_0_unscaled: 0.0701 (0.0701) cardinality_error_0_unscaled:

184.5000 (184.5000) loss_ce_1_unscaled: 0.3164 (0.3164) loss_bbox_1_unscaled:
0.0441 (0.0441) loss_giou_1_unscaled: 0.0679 (0.0679)
cardinality_error_1_unscaled: 237.7500 (237.7500) loss_ce_enc_unscaled: 0.8789
(0.8789) loss_bbox_enc_unscaled: 0.1082 (0.1082) loss_giou_enc_unscaled:
0.1422 (0.1422) cardinality_error_enc_unscaled: 195.2500 (195.2500) time:
0.8082 data: 0.4880 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 28.57 loss: 5.0323 (4.8935)
loss_ce: 0.5156 (0.5437) loss_bbox: 0.3374 (0.3128) loss_giou: 0.2239 (0.2019)
loss_ce_0: 0.6641 (0.6600) loss_bbox_0: 0.2690 (0.2952) loss_giou_0: 0.1881
(0.1921) loss_ce_1: 0.5078 (0.5518) loss_bbox_1: 0.2590 (0.2975) loss_giou_1:
0.2235 (0.1989) loss_ce_enc: 0.8672 (0.8718) loss_bbox_enc: 0.4929 (0.4817)
loss_giou_enc: 0.2981 (0.2861) loss_ce_unscaled: 0.5156 (0.5437)
class_error_unscaled: 0.0000 (8.0519) loss_bbox_unscaled: 0.0675 (0.0626)
loss_giou_unscaled: 0.1119 (0.1010) cardinality_error_unscaled: 278.5000
(274.9318) loss_ce_0_unscaled: 0.6641 (0.6600) loss_bbox_0_unscaled: 0.0538
(0.0590) loss_giou_0_unscaled: 0.0941 (0.0960) cardinality_error_0_unscaled:
227.7500 (241.9318) loss_ce_1_unscaled: 0.5078 (0.5518) loss_bbox_1_unscaled:
0.0518 (0.0595) loss_giou_1_unscaled: 0.1118 (0.0995)
cardinality_error_1_unscaled: 277.0000 (265.9545) loss_ce_enc_unscaled: 0.8672
(0.8718) loss_bbox_enc_unscaled: 0.0986 (0.0963) loss_giou_enc_unscaled:
0.1490 (0.1430) cardinality_error_enc_unscaled: 200.7500 (206.5000) time:
0.3346 data: 0.0591 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.7746 (4.7184) loss_ce:
0.4238 (0.4873) loss_bbox: 0.2827 (0.3247) loss_giou: 0.1843 (0.1925)
loss_ce_0: 0.5977 (0.6439) loss_bbox_0: 0.2822 (0.2937) loss_giou_0: 0.1535
(0.1797) loss_ce_1: 0.4043 (0.4927) loss_bbox_1: 0.2697 (0.3209) loss_giou_1:
0.1565 (0.1918) loss_ce_enc: 0.8242 (0.8464) loss_bbox_enc: 0.4607 (0.4726)
loss_giou_enc: 0.2370 (0.2724) loss_ce_unscaled: 0.4238 (0.4873)
class_error_unscaled: 0.0000 (5.8050) loss_bbox_unscaled: 0.0565 (0.0649)
loss_giou_unscaled: 0.0922 (0.0962) cardinality_error_unscaled: 278.5000
(270.0238) loss_ce_0_unscaled: 0.5977 (0.6439) loss_bbox_0_unscaled: 0.0564
(0.0587) loss_giou_0_unscaled: 0.0768 (0.0898) cardinality_error_0_unscaled:
227.7500 (235.3214) loss_ce_1_unscaled: 0.4043 (0.4927) loss_bbox_1_unscaled:
0.0539 (0.0642) loss_giou_1_unscaled: 0.0782 (0.0959)
cardinality_error_1_unscaled: 277.0000 (261.3095) loss_ce_enc_unscaled: 0.8242
(0.8464) loss_bbox_enc_unscaled: 0.0921 (0.0945) loss_giou_enc_unscaled:
0.1185 (0.1362) cardinality_error_enc_unscaled: 200.0000 (198.8571) time:
0.2880 data: 0.0171 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.1687 (4.5373) loss_ce:
0.4004 (0.4728) loss_bbox: 0.2622 (0.2955) loss_giou: 0.1520 (0.1855)
loss_ce_0: 0.6016 (0.6379) loss_bbox_0: 0.2727 (0.2688) loss_giou_0: 0.1534
(0.1738) loss_ce_1: 0.4043 (0.4917) loss_bbox_1: 0.2575 (0.2864) loss_giou_1:
0.1436 (0.1837) loss_ce_enc: 0.7773 (0.8185) loss_bbox_enc: 0.4185 (0.4520)
loss_giou_enc: 0.2395 (0.2707) loss_ce_unscaled: 0.4004 (0.4728)
class_error_unscaled: 0.0000 (4.5776) loss_bbox_unscaled: 0.0524 (0.0591)
loss_giou_unscaled: 0.0760 (0.0928) cardinality_error_unscaled: 296.5000
(275.3468) loss_ce_0_unscaled: 0.6016 (0.6379) loss_bbox_0_unscaled: 0.0545
(0.0538) loss_giou_0_unscaled: 0.0767 (0.0869) cardinality_error_0_unscaled:

275.2500 (245.4758) loss_ce_1_unscaled: 0.4043 (0.4917) loss_bbox_1_unscaled: 0.0515 (0.0573) loss_giou_1_unscaled: 0.0718 (0.0919) cardinality_error_1_unscaled: 290.5000 (267.4516) loss_ce_enc_unscaled: 0.7773 (0.8185) loss_bbox_enc_unscaled: 0.0837 (0.0904) loss_giou_enc_unscaled: 0.1198 (0.1354) cardinality_error_enc_unscaled: 218.0000 (215.4758) time: 0.2911 data: 0.0180 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.0855 (4.5543) loss_ce: 0.4316 (0.4770) loss_bbox: 0.2498 (0.2912) loss_giou: 0.1724 (0.1880) loss_ce_0: 0.6172 (0.6352) loss_bbox_0: 0.2555 (0.2820) loss_giou_0: 0.1707 (0.1831) loss_ce_1: 0.4551 (0.4974) loss_bbox_1: 0.2378 (0.2847) loss_giou_1: 0.1707 (0.1872) loss_ce_enc: 0.7773 (0.8139) loss_bbox_enc: 0.3916 (0.4421) loss_giou_enc: 0.2470 (0.2725) loss_ce_unscaled: 0.4316 (0.4770) class_error_unscaled: 0.0000 (4.1103) loss_bbox_unscaled: 0.0500 (0.0582) loss_giou_unscaled: 0.0862 (0.0940) cardinality_error_unscaled: 297.0000 (279.2237) loss_ce_0_unscaled: 0.6172 (0.6352) loss_bbox_0_unscaled: 0.0511 (0.0564) loss_giou_0_unscaled: 0.0854 (0.0915) cardinality_error_0_unscaled: 277.0000 (251.7500) loss_ce_1_unscaled: 0.4551 (0.4974) loss_bbox_1_unscaled: 0.0476 (0.0569) loss_giou_1_unscaled: 0.0854 (0.0936) cardinality_error_1_unscaled: 290.5000 (271.9803) loss_ce_enc_unscaled: 0.7773 (0.8139) loss_bbox_enc_unscaled: 0.0783 (0.0884) loss_giou_enc_unscaled: 0.1235 (0.1362) cardinality_error_enc_unscaled: 268.5000 (225.9276) time: 0.3212 data: 0.0179 max mem: 9284
Test: Total time: 0:00:12 (0.3230 s / it)
Averaged stats: class_error: 0.00 loss: 4.0855 (4.5543) loss_ce: 0.4316 (0.4770) loss_bbox: 0.2498 (0.2912) loss_giou: 0.1724 (0.1880) loss_ce_0: 0.6172 (0.6352) loss_bbox_0: 0.2555 (0.2820) loss_giou_0: 0.1707 (0.1831) loss_ce_1: 0.4551 (0.4974) loss_bbox_1: 0.2378 (0.2847) loss_giou_1: 0.1707 (0.1872) loss_ce_enc: 0.7773 (0.8139) loss_bbox_enc: 0.3916 (0.4421) loss_giou_enc: 0.2470 (0.2725) loss_ce_unscaled: 0.4316 (0.4770) class_error_unscaled: 0.0000 (4.1103) loss_bbox_unscaled: 0.0500 (0.0582) loss_giou_unscaled: 0.0862 (0.0940) cardinality_error_unscaled: 297.0000 (279.2237) loss_ce_0_unscaled: 0.6172 (0.6352) loss_bbox_0_unscaled: 0.0511 (0.0564) loss_giou_0_unscaled: 0.0854 (0.0915) cardinality_error_0_unscaled: 277.0000 (251.7500) loss_ce_1_unscaled: 0.4551 (0.4974) loss_bbox_1_unscaled: 0.0476 (0.0569) loss_giou_1_unscaled: 0.0854 (0.0936) cardinality_error_1_unscaled: 290.5000 (271.9803) loss_ce_enc_unscaled: 0.7773 (0.8139) loss_bbox_enc_unscaled: 0.0783 (0.0884) loss_giou_enc_unscaled: 0.1235 (0.1362) cardinality_error_enc_unscaled: 268.5000 (225.9276)
Accumulating evaluation results…
DONE (t=0.42s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.792
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.938
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.876
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.413
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.801
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.636

```
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.869
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.892
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.637
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.898
Grad accum steps:  4
Total batch size:  16
LENGTH OF DATA LOADER: 87
Epoch: [8]  [ 0/87]  eta: 0:12:16  lr: 0.000100  class_error: -0.00  loss:
4.5158 (4.5158)  loss_ce: 0.4766 (0.4766)  loss_bbox: 0.3308 (0.3308)
loss_giou: 0.2529 (0.2529)  loss_ce_0: 0.5181 (0.5181)  loss_bbox_0: 0.3446
(0.3446)  loss_giou_0: 0.2451 (0.2451)  loss_ce_1: 0.4434 (0.4434)  loss_bbox_1:
0.2976 (0.2976)  loss_giou_1: 0.2342 (0.2342)  loss_ce_enc: 0.6070 (0.6070)
loss_bbox_enc: 0.4327 (0.4327)  loss_giou_enc: 0.3329 (0.3329)
loss_ce_unscaled: 0.4766 (0.4766)  class_error_unscaled: -0.0000 (-0.0000)
loss_bbox_unscaled: 0.0662 (0.0662)  loss_giou_unscaled: 0.1264 (0.1264)
cardinality_error_unscaled: 3896.2500 (3896.2500)  loss_ce_0_unscaled: 0.5181
(0.5181)  loss_bbox_0_unscaled: 0.0689 (0.0689)  loss_giou_0_unscaled: 0.1226
(0.1226)  cardinality_error_0_unscaled: 3867.2500 (3867.2500)
loss_ce_1_unscaled: 0.4434 (0.4434)  loss_bbox_1_unscaled: 0.0595 (0.0595)
loss_giou_1_unscaled: 0.1171 (0.1171)  cardinality_error_1_unscaled: 3885.0000
(3885.0000)  loss_ce_enc_unscaled: 0.6070 (0.6070)  loss_bbox_enc_unscaled:
0.0865 (0.0865)  loss_giou_enc_unscaled: 0.1664 (0.1664)
cardinality_error_enc_unscaled: 3797.7500 (3797.7500)  time: 8.4620  data:
1.0974  max mem: 9284
Epoch: [8]  [10/87]  eta: 0:09:15  lr: 0.000100  class_error: 14.29  loss:
4.5202 (4.5498)  loss_ce: 0.3402 (0.3974)  loss_bbox: 0.3051 (0.2959)
loss_giou: 0.1778 (0.1825)  loss_ce_0: 0.5181 (0.5393)  loss_bbox_0: 0.3176
(0.3288)  loss_giou_0: 0.1997 (0.1998)  loss_ce_1: 0.3640 (0.4090)  loss_bbox_1:
0.2976 (0.3095)  loss_giou_1: 0.1909 (0.1894)  loss_ce_enc: 0.7271 (0.7551)
loss_bbox_enc: 0.6136 (0.6147)  loss_giou_enc: 0.3297 (0.3285)
loss_ce_unscaled: 0.3402 (0.3974)  class_error_unscaled: 0.0000 (1.2987)
loss_bbox_unscaled: 0.0610 (0.0592)  loss_giou_unscaled: 0.0889 (0.0912)
cardinality_error_unscaled: 3891.2500 (3857.0455)  loss_ce_0_unscaled: 0.5181
(0.5393)  loss_bbox_0_unscaled: 0.0635 (0.0658)  loss_giou_0_unscaled: 0.0999
(0.0999)  cardinality_error_0_unscaled: 3798.2500 (3737.1818)
loss_ce_1_unscaled: 0.3640 (0.4090)  loss_bbox_1_unscaled: 0.0595 (0.0619)
loss_giou_1_unscaled: 0.0955 (0.0947)  cardinality_error_1_unscaled: 3878.7500
(3843.9091)  loss_ce_enc_unscaled: 0.7271 (0.7551)  loss_bbox_enc_unscaled:
0.1227 (0.1229)  loss_giou_enc_unscaled: 0.1648 (0.1642)
cardinality_error_enc_unscaled: 3791.5000 (3688.0227)  time: 7.2136  data:
0.1464  max mem: 9284
Epoch: [8]  [20/87]  eta: 0:08:02  lr: 0.000100  class_error: 16.67  loss:
4.5611 (4.5056)  loss_ce: 0.3402 (0.3777)  loss_bbox: 0.2793 (0.2837)
loss_giou: 0.1485 (0.1667)  loss_ce_0: 0.5153 (0.5453)  loss_bbox_0: 0.3047
(0.3270)  loss_giou_0: 0.1741 (0.1868)  loss_ce_1: 0.3640 (0.3983)  loss_bbox_1:
0.2689 (0.2928)  loss_giou_1: 0.1506 (0.1716)  loss_ce_enc: 0.7271 (0.7555)
loss_bbox_enc: 0.6136 (0.6651)  loss_giou_enc: 0.3304 (0.3352)
```

loss_ce_unscaled: 0.3402 (0.3777) class_error_unscaled: 0.0000 (1.4739)
loss_bbox_unscaled: 0.0559 (0.0567) loss_giou_unscaled: 0.0743 (0.0834)
cardinality_error_unscaled: 3882.2500 (3795.4762) loss_ce_0_unscaled: 0.5153
(0.5453) loss_bbox_0_unscaled: 0.0609 (0.0654) loss_giou_0_unscaled: 0.0870
(0.0934) cardinality_error_0_unscaled: 3727.5000 (3594.8333)
loss_ce_1_unscaled: 0.3640 (0.3983) loss_bbox_1_unscaled: 0.0538 (0.0586)
loss_giou_1_unscaled: 0.0753 (0.0858) cardinality_error_1_unscaled: 3853.7500
(3775.4286) loss_ce_enc_unscaled: 0.7271 (0.7555) loss_bbox_enc_unscaled:
0.1227 (0.1330) loss_giou_enc_unscaled: 0.1652 (0.1676)
cardinality_error_enc_unscaled: 3731.5000 (3602.7738) time: 7.1392 data:
0.0502 max mem: 9284
Epoch: [8] [30/87] eta: 0:06:50 lr: 0.000100 class_error: 11.54 loss:
4.0748 (4.3886) loss_ce: 0.3295 (0.3630) loss_bbox: 0.2595 (0.2815)
loss_giou: 0.1247 (0.1565) loss_ce_0: 0.5058 (0.5349) loss_bbox_0: 0.2777
(0.3167) loss_giou_0: 0.1462 (0.1738) loss_ce_1: 0.3554 (0.3822) loss_bbox_1:
0.2605 (0.2892) loss_giou_1: 0.1320 (0.1597) loss_ce_enc: 0.7132 (0.7549)
loss_bbox_enc: 0.5955 (0.6551) loss_giou_enc: 0.3273 (0.3211)
loss_ce_unscaled: 0.3295 (0.3630) class_error_unscaled: 0.0000 (1.3707)
loss_bbox_unscaled: 0.0519 (0.0563) loss_giou_unscaled: 0.0623 (0.0782)
cardinality_error_unscaled: 3833.0000 (3726.7419) loss_ce_0_unscaled: 0.5058
(0.5349) loss_bbox_0_unscaled: 0.0555 (0.0633) loss_giou_0_unscaled: 0.0731
(0.0869) cardinality_error_0_unscaled: 3453.5000 (3490.8226)
loss_ce_1_unscaled: 0.3554 (0.3822) loss_bbox_1_unscaled: 0.0521 (0.0578)
loss_giou_1_unscaled: 0.0660 (0.0799) cardinality_error_1_unscaled: 3761.7500
(3703.7097) loss_ce_enc_unscaled: 0.7132 (0.7549) loss_bbox_enc_unscaled:
0.1191 (0.1310) loss_giou_enc_unscaled: 0.1637 (0.1606)
cardinality_error_enc_unscaled: 3476.7500 (3505.8548) time: 7.1848 data:
0.0490 max mem: 9284
Epoch: [8] [40/87] eta: 0:05:35 lr: 0.000100 class_error: 0.00 loss: 3.8027
(4.2957) loss_ce: 0.2797 (0.3607) loss_bbox: 0.2279 (0.2709) loss_giou:
0.1228 (0.1552) loss_ce_0: 0.4983 (0.5442) loss_bbox_0: 0.2510 (0.3030)
loss_giou_0: 0.1442 (0.1703) loss_ce_1: 0.2962 (0.3805) loss_bbox_1: 0.2328
(0.2772) loss_giou_1: 0.1347 (0.1577) loss_ce_enc: 0.7247 (0.7458)
loss_bbox_enc: 0.5861 (0.6205) loss_giou_enc: 0.2838 (0.3099)
loss_ce_unscaled: 0.2797 (0.3607) class_error_unscaled: 0.0000 (1.2427)
loss_bbox_unscaled: 0.0456 (0.0542) loss_giou_unscaled: 0.0614 (0.0776)
cardinality_error_unscaled: 3865.2500 (3745.5427) loss_ce_0_unscaled: 0.4983
(0.5442) loss_bbox_0_unscaled: 0.0502 (0.0606) loss_giou_0_unscaled: 0.0721
(0.0851) cardinality_error_0_unscaled: 3681.0000 (3522.9207)
loss_ce_1_unscaled: 0.2962 (0.3805) loss_bbox_1_unscaled: 0.0466 (0.0554)
loss_giou_1_unscaled: 0.0674 (0.0788) cardinality_error_1_unscaled: 3830.7500
(3716.1402) loss_ce_enc_unscaled: 0.7247 (0.7458) loss_bbox_enc_unscaled:
0.1172 (0.1241) loss_giou_enc_unscaled: 0.1419 (0.1550)
cardinality_error_enc_unscaled: 3618.2500 (3517.2561) time: 7.0903 data:
0.0500 max mem: 9284
Epoch: [8] [50/87] eta: 0:04:24 lr: 0.000100 class_error: 0.00 loss: 4.1502
(4.3731) loss_ce: 0.3542 (0.3760) loss_bbox: 0.2279 (0.2737) loss_giou:
0.1298 (0.1539) loss_ce_0: 0.5750 (0.5707) loss_bbox_0: 0.2787 (0.3053)

loss_giou_0: 0.1483 (0.1689) loss_ce_1: 0.3568 (0.4010) loss_bbox_1: 0.2386
(0.2818) loss_giou_1: 0.1347 (0.1572) loss_ce_enc: 0.7292 (0.7582)
loss_bbox_enc: 0.5717 (0.6182) loss_giou_enc: 0.2838 (0.3082)
loss_ce_unscaled: 0.3542 (0.3760) class_error_unscaled: 0.0000 (0.9991)
loss_bbox_unscaled: 0.0456 (0.0547) loss_giou_unscaled: 0.0649 (0.0770)
cardinality_error_unscaled: 3882.0000 (3743.1520) loss_ce_0_unscaled: 0.5750
(0.5707) loss_bbox_0_unscaled: 0.0557 (0.0611) loss_giou_0_unscaled: 0.0741
(0.0845) cardinality_error_0_unscaled: 3733.7500 (3514.4706)
loss_ce_1_unscaled: 0.3568 (0.4010) loss_bbox_1_unscaled: 0.0477 (0.0564)
loss_giou_1_unscaled: 0.0674 (0.0786) cardinality_error_1_unscaled: 3859.5000
(3711.9657) loss_ce_enc_unscaled: 0.7292 (0.7582) loss_bbox_enc_unscaled:
0.1143 (0.1236) loss_giou_enc_unscaled: 0.1419 (0.1541)
cardinality_error_enc_unscaled: 3809.7500 (3521.2353) time: 7.0943 data:
0.0503 max mem: 9284
Epoch: [8] [60/87] eta: 0:03:12 lr: 0.000100 class_error: -0.00 loss:
4.3239 (4.3982) loss_ce: 0.4244 (0.3861) loss_bbox: 0.2461 (0.2722)
loss_giou: 0.1452 (0.1608) loss_ce_0: 0.5926 (0.5742) loss_bbox_0: 0.2830
(0.3034) loss_giou_0: 0.1584 (0.1753) loss_ce_1: 0.4534 (0.4116) loss_bbox_1:
0.2552 (0.2831) loss_giou_1: 0.1579 (0.1649) loss_ce_enc: 0.6968 (0.7582)
loss_bbox_enc: 0.5348 (0.5999) loss_giou_enc: 0.2968 (0.3086)
loss_ce_unscaled: 0.4244 (0.3861) class_error_unscaled: 0.0000 (1.3870)
loss_bbox_unscaled: 0.0492 (0.0544) loss_giou_unscaled: 0.0726 (0.0804)
cardinality_error_unscaled: 3872.5000 (3732.1148) loss_ce_0_unscaled: 0.5926
(0.5742) loss_bbox_0_unscaled: 0.0566 (0.0607) loss_giou_0_unscaled: 0.0792
(0.0876) cardinality_error_0_unscaled: 3694.2500 (3502.7172)
loss_ce_1_unscaled: 0.4534 (0.4116) loss_bbox_1_unscaled: 0.0510 (0.0566)
loss_giou_1_unscaled: 0.0790 (0.0825) cardinality_error_1_unscaled: 3859.5000
(3691.5205) loss_ce_enc_unscaled: 0.6968 (0.7582) loss_bbox_enc_unscaled:
0.1070 (0.1200) loss_giou_enc_unscaled: 0.1484 (0.1543)
cardinality_error_enc_unscaled: 3689.5000 (3504.8156) time: 7.1306 data:
0.0489 max mem: 9284
Epoch: [8] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 0.00 loss: 4.2696
(4.3829) loss_ce: 0.4244 (0.3871) loss_bbox: 0.2443 (0.2717) loss_giou:
0.1603 (0.1632) loss_ce_0: 0.5780 (0.5769) loss_bbox_0: 0.2608 (0.3024)
loss_giou_0: 0.1685 (0.1771) loss_ce_1: 0.4238 (0.4128) loss_bbox_1: 0.2529
(0.2825) loss_giou_1: 0.1579 (0.1669) loss_ce_enc: 0.7063 (0.7566)
loss_bbox_enc: 0.4766 (0.5819) loss_giou_enc: 0.2805 (0.3038)
loss_ce_unscaled: 0.4244 (0.3871) class_error_unscaled: 0.0000 (1.2566)
loss_bbox_unscaled: 0.0489 (0.0543) loss_giou_unscaled: 0.0802 (0.0816)
cardinality_error_unscaled: 3629.5000 (3705.4014) loss_ce_0_unscaled: 0.5780
(0.5769) loss_bbox_0_unscaled: 0.0522 (0.0605) loss_giou_0_unscaled: 0.0842
(0.0886) cardinality_error_0_unscaled: 3088.5000 (3475.8556)
loss_ce_1_unscaled: 0.4238 (0.4128) loss_bbox_1_unscaled: 0.0506 (0.0565)
loss_giou_1_unscaled: 0.0790 (0.0835) cardinality_error_1_unscaled: 3461.0000
(3658.6725) loss_ce_enc_unscaled: 0.7063 (0.7566) loss_bbox_enc_unscaled:
0.0953 (0.1164) loss_giou_enc_unscaled: 0.1403 (0.1519)
cardinality_error_enc_unscaled: 3071.5000 (3477.4930) time: 6.9924 data:
0.0503 max mem: 9284

Epoch: [8] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss: 4.1807
(4.3744) loss_ce: 0.3516 (0.3890) loss_bbox: 0.2473 (0.2720) loss_giou:
0.1608 (0.1635) loss_ce_0: 0.5772 (0.5765) loss_bbox_0: 0.2802 (0.3033)
loss_giou_0: 0.1705 (0.1773) loss_ce_1: 0.3667 (0.4136) loss_bbox_1: 0.2630
(0.2847) loss_giou_1: 0.1596 (0.1676) loss_ce_enc: 0.7276 (0.7540)
loss_bbox_enc: 0.5024 (0.5725) loss_giou_enc: 0.2626 (0.3005)
loss_ce_unscaled: 0.3516 (0.3890) class_error_unscaled: 0.0000 (1.1015)
loss_bbox_unscaled: 0.0495 (0.0544) loss_giou_unscaled: 0.0804 (0.0818)
cardinality_error_unscaled: 3882.0000 (3702.7654) loss_ce_0_unscaled: 0.5772
(0.5765) loss_bbox_0_unscaled: 0.0560 (0.0607) loss_giou_0_unscaled: 0.0853
(0.0887) cardinality_error_0_unscaled: 3697.2500 (3483.2870)
loss_ce_1_unscaled: 0.3667 (0.4136) loss_bbox_1_unscaled: 0.0526 (0.0569)
loss_giou_1_unscaled: 0.0798 (0.0838) cardinality_error_1_unscaled: 3858.0000
(3660.7377) loss_ce_enc_unscaled: 0.7276 (0.7540) loss_bbox_enc_unscaled:
0.1005 (0.1145) loss_giou_enc_unscaled: 0.1313 (0.1502)
cardinality_error_enc_unscaled: 3598.2500 (3484.4105) time: 7.0462 data:
0.0512 max mem: 9284
Epoch: [8] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 4.1303
(4.3755) loss_ce: 0.3254 (0.3906) loss_bbox: 0.2783 (0.2757) loss_giou:
0.1608 (0.1627) loss_ce_0: 0.5226 (0.5746) loss_bbox_0: 0.3018 (0.3041)
loss_giou_0: 0.1649 (0.1756) loss_ce_1: 0.3548 (0.4160) loss_bbox_1: 0.2646
(0.2838) loss_giou_1: 0.1575 (0.1658) loss_ce_enc: 0.7653 (0.7578)
loss_bbox_enc: 0.4849 (0.5703) loss_giou_enc: 0.2573 (0.2984)
loss_ce_unscaled: 0.3254 (0.3906) class_error_unscaled: 0.0000 (1.4860)
loss_bbox_unscaled: 0.0557 (0.0551) loss_giou_unscaled: 0.0804 (0.0814)
cardinality_error_unscaled: 3882.0000 (3703.4195) loss_ce_0_unscaled: 0.5226
(0.5746) loss_bbox_0_unscaled: 0.0604 (0.0608) loss_giou_0_unscaled: 0.0825
(0.0878) cardinality_error_0_unscaled: 3706.7500 (3483.5718)
loss_ce_1_unscaled: 0.3548 (0.4160) loss_bbox_1_unscaled: 0.0529 (0.0568)
loss_giou_1_unscaled: 0.0788 (0.0829) cardinality_error_1_unscaled: 3864.5000
(3664.0690) loss_ce_enc_unscaled: 0.7653 (0.7578) loss_bbox_enc_unscaled:
0.0970 (0.1141) loss_giou_enc_unscaled: 0.1287 (0.1492)
cardinality_error_enc_unscaled: 3751.2500 (3490.3161) time: 7.0971 data:
0.0505 max mem: 9284
Epoch: [8] Total time: 0:10:19 (7.1250 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 4.1303 (4.3755) loss_ce:
0.3254 (0.3906) loss_bbox: 0.2783 (0.2757) loss_giou: 0.1608 (0.1627)
loss_ce_0: 0.5226 (0.5746) loss_bbox_0: 0.3018 (0.3041) loss_giou_0: 0.1649
(0.1756) loss_ce_1: 0.3548 (0.4160) loss_bbox_1: 0.2646 (0.2838) loss_giou_1:
0.1575 (0.1658) loss_ce_enc: 0.7653 (0.7578) loss_bbox_enc: 0.4849 (0.5703)
loss_giou_enc: 0.2573 (0.2984) loss_ce_unscaled: 0.3254 (0.3906)
class_error_unscaled: 0.0000 (1.4860) loss_bbox_unscaled: 0.0557 (0.0551)
loss_giou_unscaled: 0.0804 (0.0814) cardinality_error_unscaled: 3882.0000
(3703.4195) loss_ce_0_unscaled: 0.5226 (0.5746) loss_bbox_0_unscaled: 0.0604
(0.0608) loss_giou_0_unscaled: 0.0825 (0.0878) cardinality_error_0_unscaled:
3706.7500 (3483.5718) loss_ce_1_unscaled: 0.3548 (0.4160)
loss_bbox_1_unscaled: 0.0529 (0.0568) loss_giou_1_unscaled: 0.0788 (0.0829)
cardinality_error_1_unscaled: 3864.5000 (3664.0690) loss_ce_enc_unscaled:

0.7653 (0.7578) loss_bbox_enc_unscaled: 0.0970 (0.1141)
loss_giou_enc_unscaled: 0.1287 (0.1492) cardinality_error_enc_unscaled:
3751.2500 (3490.3161)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 5.6408 (5.6408) loss_ce:
0.4648 (0.4648) loss_bbox: 0.2861 (0.2861) loss_giou: 0.1657 (0.1657)
loss_ce_0: 0.8125 (0.8125) loss_bbox_0: 0.3627 (0.3627) loss_giou_0: 0.1925
(0.1925) loss_ce_1: 0.5977 (0.5977) loss_bbox_1: 0.3279 (0.3279) loss_giou_1:
0.1769 (0.1769) loss_ce_enc: 1.0625 (1.0625) loss_bbox_enc: 0.8175 (0.8175)
loss_giou_enc: 0.3741 (0.3741) loss_ce_unscaled: 0.4648 (0.4648)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0572 (0.0572)
loss_giou_unscaled: 0.0828 (0.0828) cardinality_error_unscaled: 246.7500
(246.7500) loss_ce_0_unscaled: 0.8125 (0.8125) loss_bbox_0_unscaled: 0.0725
(0.0725) loss_giou_0_unscaled: 0.0962 (0.0962) cardinality_error_0_unscaled:
198.5000 (198.5000) loss_ce_1_unscaled: 0.5977 (0.5977) loss_bbox_1_unscaled:
0.0656 (0.0656) loss_giou_1_unscaled: 0.0884 (0.0884)
cardinality_error_1_unscaled: 235.5000 (235.5000) loss_ce_enc_unscaled: 1.0625
(1.0625) loss_bbox_enc_unscaled: 0.1635 (0.1635) loss_giou_enc_unscaled:
0.1870 (0.1870) cardinality_error_enc_unscaled: 218.7500 (218.7500) time:
0.7249 data: 0.3252 max mem: 9284
Test: [10/38] eta: 0:00:08 class_error: 42.86 loss: 5.6408 (5.6474)
loss_ce: 0.5859 (0.6250) loss_bbox: 0.2864 (0.3500) loss_giou: 0.2021 (0.2243)
loss_ce_0: 0.6914 (0.7528) loss_bbox_0: 0.3627 (0.3705) loss_giou_0: 0.1925
(0.2230) loss_ce_1: 0.6094 (0.6570) loss_bbox_1: 0.3279 (0.3437) loss_giou_1:
0.2011 (0.2148) loss_ce_enc: 0.8867 (0.9052) loss_bbox_enc: 0.5884 (0.6190)
loss_giou_enc: 0.3548 (0.3620) loss_ce_unscaled: 0.5859 (0.6250)
class_error_unscaled: 0.0000 (8.2143) loss_bbox_unscaled: 0.0573 (0.0700)
loss_giou_unscaled: 0.1010 (0.1122) cardinality_error_unscaled: 285.5000
(271.6818) loss_ce_0_unscaled: 0.6914 (0.7528) loss_bbox_0_unscaled: 0.0725
(0.0741) loss_giou_0_unscaled: 0.0962 (0.1115) cardinality_error_0_unscaled:
225.7500 (250.2273) loss_ce_1_unscaled: 0.6094 (0.6570) loss_bbox_1_unscaled:
0.0656 (0.0687) loss_giou_1_unscaled: 0.1006 (0.1074)
cardinality_error_1_unscaled: 286.5000 (269.1136) loss_ce_enc_unscaled: 0.8867
(0.9052) loss_bbox_enc_unscaled: 0.1177 (0.1238) loss_giou_enc_unscaled:
0.1774 (0.1810) cardinality_error_enc_unscaled: 224.0000 (249.7045) time:
0.3194 data: 0.0460 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.3129 (5.3230) loss_ce:
0.5703 (0.5645) loss_bbox: 0.2864 (0.3410) loss_giou: 0.1953 (0.2024)
loss_ce_0: 0.6914 (0.7135) loss_bbox_0: 0.3249 (0.3589) loss_giou_0: 0.1923
(0.2081) loss_ce_1: 0.5508 (0.5891) loss_bbox_1: 0.2876 (0.3424) loss_giou_1:
0.1887 (0.1984) loss_ce_enc: 0.8281 (0.8531) loss_bbox_enc: 0.5589 (0.6009)
loss_giou_enc: 0.3389 (0.3507) loss_ce_unscaled: 0.5703 (0.5645)
class_error_unscaled: 0.0000 (6.3662) loss_bbox_unscaled: 0.0573 (0.0682)
loss_giou_unscaled: 0.0977 (0.1012) cardinality_error_unscaled: 285.5000
(268.5833) loss_ce_0_unscaled: 0.6914 (0.7135) loss_bbox_0_unscaled: 0.0650
(0.0718) loss_giou_0_unscaled: 0.0961 (0.1041) cardinality_error_0_unscaled:
238.2500 (245.4405) loss_ce_1_unscaled: 0.5508 (0.5891) loss_bbox_1_unscaled:
0.0575 (0.0685) loss_giou_1_unscaled: 0.0944 (0.0992)
cardinality_error_1_unscaled: 286.5000 (266.7143) loss_ce_enc_unscaled: 0.8281

(0.8531) loss_bbox_enc_unscaled: 0.1118 (0.1202) loss_giou_enc_unscaled: 0.1694 (0.1754) cardinality_error_enc_unscaled: 224.0000 (235.3214) time: 0.2945 data: 0.0200 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.8188 (5.2048) loss_ce: 0.5000 (0.5471) loss_bbox: 0.2567 (0.3233) loss_giou: 0.1520 (0.1994) loss_ce_0: 0.7109 (0.7150) loss_bbox_0: 0.2846 (0.3466) loss_giou_0: 0.2012 (0.2107) loss_ce_1: 0.5078 (0.5687) loss_bbox_1: 0.2876 (0.3331) loss_giou_1: 0.1612 (0.2007) loss_ce_enc: 0.8086 (0.8402) loss_bbox_enc: 0.5277 (0.5751) loss_giou_enc: 0.3389 (0.3446) loss_ce_unscaled: 0.5000 (0.5471) class_error_unscaled: 0.0000 (5.8962) loss_bbox_unscaled: 0.0513 (0.0647) loss_giou_unscaled: 0.0760 (0.0997) cardinality_error_unscaled: 295.7500 (273.7581) loss_ce_0_unscaled: 0.7109 (0.7150) loss_bbox_0_unscaled: 0.0569 (0.0693) loss_giou_0_unscaled: 0.1006 (0.1054) cardinality_error_0_unscaled: 284.0000 (255.6048) loss_ce_1_unscaled: 0.5078 (0.5687) loss_bbox_1_unscaled: 0.0575 (0.0666) loss_giou_1_unscaled: 0.0806 (0.1004) cardinality_error_1_unscaled: 294.2500 (271.9839) loss_ce_enc_unscaled: 0.8086 (0.8402) loss_bbox_enc_unscaled: 0.1055 (0.1150) loss_giou_enc_unscaled: 0.1694 (0.1723) cardinality_error_enc_unscaled: 270.7500 (248.3468) time: 0.2939 data: 0.0199 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.9480 (5.2461) loss_ce: 0.5156 (0.5478) loss_bbox: 0.2497 (0.3225) loss_giou: 0.1806 (0.2049) loss_ce_0: 0.7070 (0.7173) loss_bbox_0: 0.2993 (0.3551) loss_giou_0: 0.2130 (0.2193) loss_ce_1: 0.5078 (0.5754) loss_bbox_1: 0.2956 (0.3337) loss_giou_1: 0.1943 (0.2071) loss_ce_enc: 0.7461 (0.8302) loss_bbox_enc: 0.5332 (0.5793) loss_giou_enc: 0.3541 (0.3536) loss_ce_unscaled: 0.5156 (0.5478) class_error_unscaled: 0.0000 (5.5149) loss_bbox_unscaled: 0.0499 (0.0645) loss_giou_unscaled: 0.0903 (0.1025) cardinality_error_unscaled: 296.7500 (278.0724) loss_ce_0_unscaled: 0.7070 (0.7173) loss_bbox_0_unscaled: 0.0599 (0.0710) loss_giou_0_unscaled: 0.1065 (0.1096) cardinality_error_0_unscaled: 287.7500 (261.9671) loss_ce_1_unscaled: 0.5078 (0.5754) loss_bbox_1_unscaled: 0.0591 (0.0667) loss_giou_1_unscaled: 0.0972 (0.1036) cardinality_error_1_unscaled: 295.2500 (276.4079) loss_ce_enc_unscaled: 0.7461 (0.8302) loss_bbox_enc_unscaled: 0.1066 (0.1159) loss_giou_enc_unscaled: 0.1770 (0.1768) cardinality_error_enc_unscaled: 287.7500 (256.3882) time: 0.3019 data: 0.0182 max mem: 9284
Test: Total time: 0:00:11 (0.3117 s / it)
Averaged stats: class_error: 0.00 loss: 4.9480 (5.2461) loss_ce: 0.5156 (0.5478) loss_bbox: 0.2497 (0.3225) loss_giou: 0.1806 (0.2049) loss_ce_0: 0.7070 (0.7173) loss_bbox_0: 0.2993 (0.3551) loss_giou_0: 0.2130 (0.2193) loss_ce_1: 0.5078 (0.5754) loss_bbox_1: 0.2956 (0.3337) loss_giou_1: 0.1943 (0.2071) loss_ce_enc: 0.7461 (0.8302) loss_bbox_enc: 0.5332 (0.5793) loss_giou_enc: 0.3541 (0.3536) loss_ce_unscaled: 0.5156 (0.5478) class_error_unscaled: 0.0000 (5.5149) loss_bbox_unscaled: 0.0499 (0.0645) loss_giou_unscaled: 0.0903 (0.1025) cardinality_error_unscaled: 296.7500 (278.0724) loss_ce_0_unscaled: 0.7070 (0.7173) loss_bbox_0_unscaled: 0.0599 (0.0710) loss_giou_0_unscaled: 0.1065 (0.1096) cardinality_error_0_unscaled: 287.7500 (261.9671) loss_ce_1_unscaled: 0.5078 (0.5754) loss_bbox_1_unscaled: 0.0591 (0.0667) loss_giou_1_unscaled: 0.0972 (0.1036)

```
cardinality_error_1_unscaled: 295.2500 (276.4079)  loss_ce_enc_unscaled: 0.7461
(0.8302)  loss_bbox_enc_unscaled: 0.1066 (0.1159)  loss_giou_enc_unscaled:
0.1770 (0.1768)  cardinality_error_enc_unscaled: 287.7500 (256.3882)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.747
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.911
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.810
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.389
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.756
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.616
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.860
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.884
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.662
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.889
Test:  [ 0/38]  eta: 0:00:24  class_error: 0.00  loss: 4.2659 (4.2659)  loss_ce:
0.3301 (0.3301)  loss_bbox: 0.2213 (0.2213)  loss_giou: 0.1349 (0.1349)
loss_ce_0: 0.4766 (0.4766)  loss_bbox_0: 0.2594 (0.2594)  loss_giou_0: 0.1580
(0.1580)  loss_ce_1: 0.3320 (0.3320)  loss_bbox_1: 0.2292 (0.2292)  loss_giou_1:
0.1422 (0.1422)  loss_ce_enc: 0.8516 (0.8516)  loss_bbox_enc: 0.8060 (0.8060)
loss_giou_enc: 0.3245 (0.3245)  loss_ce_unscaled: 0.3301 (0.3301)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0443 (0.0443)
loss_giou_unscaled: 0.0675 (0.0675)  cardinality_error_unscaled: 261.0000
(261.0000)  loss_ce_0_unscaled: 0.4766 (0.4766)  loss_bbox_0_unscaled: 0.0519
(0.0519)  loss_giou_0_unscaled: 0.0790 (0.0790)  cardinality_error_0_unscaled:
190.7500 (190.7500)  loss_ce_1_unscaled: 0.3320 (0.3320)  loss_bbox_1_unscaled:
0.0458 (0.0458)  loss_giou_1_unscaled: 0.0711 (0.0711)
cardinality_error_1_unscaled: 238.7500 (238.7500)  loss_ce_enc_unscaled: 0.8516
(0.8516)  loss_bbox_enc_unscaled: 0.1612 (0.1612)  loss_giou_enc_unscaled:
0.1623 (0.1623)  cardinality_error_enc_unscaled: 209.5000 (209.5000)  time:
0.6402  data: 0.3269  max mem: 9284
Test:  [10/38]  eta: 0:00:09  class_error: 14.29  loss: 4.8030 (4.8633)
loss_ce: 0.5312 (0.5428)  loss_bbox: 0.2930 (0.3146)  loss_giou: 0.1939 (0.2029)
loss_ce_0: 0.6484 (0.6406)  loss_bbox_0: 0.2800 (0.3041)  loss_giou_0: 0.2046
(0.1988)  loss_ce_1: 0.5391 (0.5460)  loss_bbox_1: 0.2497 (0.3078)  loss_giou_1:
0.1941 (0.2039)  loss_ce_enc: 0.8516 (0.8612)  loss_bbox_enc: 0.4591 (0.4610)
loss_giou_enc: 0.2876 (0.2798)  loss_ce_unscaled: 0.5312 (0.5428)
class_error_unscaled: 0.0000 (6.7532)  loss_bbox_unscaled: 0.0586 (0.0629)
loss_giou_unscaled: 0.0970 (0.1015)  cardinality_error_unscaled: 277.7500
(275.3636)  loss_ce_0_unscaled: 0.6484 (0.6406)  loss_bbox_0_unscaled: 0.0560
(0.0608)  loss_giou_0_unscaled: 0.1023 (0.0994)  cardinality_error_0_unscaled:
227.5000 (245.7955)  loss_ce_1_unscaled: 0.5391 (0.5460)  loss_bbox_1_unscaled:
0.0499 (0.0616)  loss_giou_1_unscaled: 0.0971 (0.1019)
cardinality_error_1_unscaled: 277.7500 (266.5455)  loss_ce_enc_unscaled: 0.8516
(0.8612)  loss_bbox_enc_unscaled: 0.0918 (0.0922)  loss_giou_enc_unscaled:
```

0.1438 (0.1399) cardinality_error_enc_unscaled: 222.7500 (232.0909) time: 0.3268 data: 0.0465 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.5194 (4.6486) loss_ce: 0.4492 (0.4907) loss_bbox: 0.2730 (0.3243) loss_giou: 0.1915 (0.1933) loss_ce_0: 0.5742 (0.5988) loss_bbox_0: 0.2800 (0.3200) loss_giou_0: 0.1656 (0.1913) loss_ce_1: 0.4199 (0.4852) loss_bbox_1: 0.2531 (0.3232) loss_giou_1: 0.1638 (0.1938) loss_ce_enc: 0.7891 (0.8125) loss_bbox_enc: 0.4237 (0.4452) loss_giou_enc: 0.2236 (0.2703) loss_ce_unscaled: 0.4492 (0.4907) class_error_unscaled: 0.0000 (5.6009) loss_bbox_unscaled: 0.0546 (0.0649) loss_giou_unscaled: 0.0957 (0.0966) cardinality_error_unscaled: 277.7500 (270.8333) loss_ce_0_unscaled: 0.5742 (0.5988) loss_bbox_0_unscaled: 0.0560 (0.0640) loss_giou_0_unscaled: 0.0828 (0.0956) cardinality_error_0_unscaled: 227.5000 (238.8333) loss_ce_1_unscaled: 0.4199 (0.4852) loss_bbox_1_unscaled: 0.0506 (0.0646) loss_giou_1_unscaled: 0.0819 (0.0969) cardinality_error_1_unscaled: 277.7500 (261.6667) loss_ce_enc_unscaled: 0.7891 (0.8125) loss_bbox_enc_unscaled: 0.0847 (0.0890) loss_giou_enc_unscaled: 0.1118 (0.1352) cardinality_error_enc_unscaled: 212.2500 (220.0714) time: 0.3089 data: 0.0208 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.0027 (4.4495) loss_ce: 0.3867 (0.4569) loss_bbox: 0.2482 (0.3013) loss_giou: 0.1478 (0.1880) loss_ce_0: 0.5430 (0.5863) loss_bbox_0: 0.2535 (0.2969) loss_giou_0: 0.1656 (0.1862) loss_ce_1: 0.3965 (0.4654) loss_bbox_1: 0.2391 (0.2964) loss_giou_1: 0.1446 (0.1864) loss_ce_enc: 0.7383 (0.7825) loss_bbox_enc: 0.3972 (0.4350) loss_giou_enc: 0.2534 (0.2682) loss_ce_unscaled: 0.3867 (0.4569) class_error_unscaled: 0.0000 (4.4393) loss_bbox_unscaled: 0.0496 (0.0603) loss_giou_unscaled: 0.0739 (0.0940) cardinality_error_unscaled: 296.2500 (275.6855) loss_ce_0_unscaled: 0.5430 (0.5863) loss_bbox_0_unscaled: 0.0507 (0.0594) loss_giou_0_unscaled: 0.0828 (0.0931) cardinality_error_0_unscaled: 280.2500 (249.8226) loss_ce_1_unscaled: 0.3965 (0.4654) loss_bbox_1_unscaled: 0.0478 (0.0593) loss_giou_1_unscaled: 0.0723 (0.0932) cardinality_error_1_unscaled: 292.5000 (267.9032) loss_ce_enc_unscaled: 0.7383 (0.7825) loss_bbox_enc_unscaled: 0.0794 (0.0870) loss_giou_enc_unscaled: 0.1267 (0.1341) cardinality_error_enc_unscaled: 255.2500 (235.2177) time: 0.3058 data: 0.0204 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.0534 (4.4982) loss_ce: 0.4043 (0.4601) loss_bbox: 0.2298 (0.2994) loss_giou: 0.1665 (0.1921) loss_ce_0: 0.5508 (0.5884) loss_bbox_0: 0.2589 (0.3097) loss_giou_0: 0.1942 (0.1973) loss_ce_1: 0.4121 (0.4713) loss_bbox_1: 0.2391 (0.2973) loss_giou_1: 0.1715 (0.1914) loss_ce_enc: 0.6797 (0.7737) loss_bbox_enc: 0.4237 (0.4411) loss_giou_enc: 0.2613 (0.2763) loss_ce_unscaled: 0.4043 (0.4601) class_error_unscaled: 0.0000 (3.6216) loss_bbox_unscaled: 0.0460 (0.0599) loss_giou_unscaled: 0.0833 (0.0961) cardinality_error_unscaled: 296.5000 (279.5395) loss_ce_0_unscaled: 0.5508 (0.5884) loss_bbox_0_unscaled: 0.0518 (0.0619) loss_giou_0_unscaled: 0.0971 (0.0986) cardinality_error_0_unscaled: 284.0000 (256.1645) loss_ce_1_unscaled: 0.4121 (0.4713) loss_bbox_1_unscaled: 0.0478 (0.0595) loss_giou_1_unscaled: 0.0857 (0.0957) cardinality_error_1_unscaled: 293.5000 (272.6316) loss_ce_enc_unscaled: 0.6797 (0.7737) loss_bbox_enc_unscaled: 0.0847 (0.0882) loss_giou_enc_unscaled:

0.1307 (0.1382) cardinality_error_enc_unscaled: 282.7500 (244.6382) time:
0.2869 data: 0.0178 max mem: 9284
Test: Total time: 0:00:11 (0.3074 s / it)
Averaged stats: class_error: 0.00 loss: 4.0534 (4.4982) loss_ce: 0.4043
(0.4601) loss_bbox: 0.2298 (0.2994) loss_giou: 0.1665 (0.1921) loss_ce_0:
0.5508 (0.5884) loss_bbox_0: 0.2589 (0.3097) loss_giou_0: 0.1942 (0.1973)
loss_ce_1: 0.4121 (0.4713) loss_bbox_1: 0.2391 (0.2973) loss_giou_1: 0.1715
(0.1914) loss_ce_enc: 0.6797 (0.7737) loss_bbox_enc: 0.4237 (0.4411)
loss_giou_enc: 0.2613 (0.2763) loss_ce_unscaled: 0.4043 (0.4601)
class_error_unscaled: 0.0000 (3.6216) loss_bbox_unscaled: 0.0460 (0.0599)
loss_giou_unscaled: 0.0833 (0.0961) cardinality_error_unscaled: 296.5000
(279.5395) loss_ce_0_unscaled: 0.5508 (0.5884) loss_bbox_0_unscaled: 0.0518
(0.0619) loss_giou_0_unscaled: 0.0971 (0.0986) cardinality_error_0_unscaled:
284.0000 (256.1645) loss_ce_1_unscaled: 0.4121 (0.4713) loss_bbox_1_unscaled:
0.0478 (0.0595) loss_giou_1_unscaled: 0.0857 (0.0957)
cardinality_error_1_unscaled: 293.5000 (272.6316) loss_ce_enc_unscaled: 0.6797
(0.7737) loss_bbox_enc_unscaled: 0.0847 (0.0882) loss_giou_enc_unscaled:
0.1307 (0.1382) cardinality_error_enc_unscaled: 282.7500 (244.6382)
Accumulating evaluation results…
DONE (t=0.24s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.800
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.948
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.880
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.419
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.809
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.636
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.873
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.891
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.620
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.898
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [9] [0/87] eta: 0:12:14 lr: 0.000100 class_error: 0.00 loss: 2.9367
(2.9367) loss_ce: 0.2166 (0.2166) loss_bbox: 0.1947 (0.1947) loss_giou:
0.0991 (0.0991) loss_ce_0: 0.3336 (0.3336) loss_bbox_0: 0.2088 (0.2088)
loss_giou_0: 0.1036 (0.1036) loss_ce_1: 0.2468 (0.2468) loss_bbox_1: 0.1966
(0.1966) loss_giou_1: 0.1020 (0.1020) loss_ce_enc: 0.5798 (0.5798)
loss_bbox_enc: 0.4090 (0.4090) loss_giou_enc: 0.2462 (0.2462)
loss_ce_unscaled: 0.2166 (0.2166) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0389 (0.0389) loss_giou_unscaled: 0.0496 (0.0496)
cardinality_error_unscaled: 3894.2500 (3894.2500) loss_ce_0_unscaled: 0.3336
(0.3336) loss_bbox_0_unscaled: 0.0418 (0.0418) loss_giou_0_unscaled: 0.0518
(0.0518) cardinality_error_0_unscaled: 3881.0000 (3881.0000)
loss_ce_1_unscaled: 0.2468 (0.2468) loss_bbox_1_unscaled: 0.0393 (0.0393)

loss_giou_1_unscaled: 0.0510 (0.0510) cardinality_error_1_unscaled: 3890.2500
(3890.2500) loss_ce_enc_unscaled: 0.5798 (0.5798) loss_bbox_enc_unscaled:
0.0818 (0.0818) loss_giou_enc_unscaled: 0.1231 (0.1231)
cardinality_error_enc_unscaled: 3765.2500 (3765.2500) time: 8.4369 data:
1.1025 max mem: 9284
Epoch: [9] [10/87] eta: 0:09:00 lr: 0.000100 class_error: 0.00 loss: 4.0806
(4.4154) loss_ce: 0.4286 (0.4361) loss_bbox: 0.2467 (0.2751) loss_giou:
0.1397 (0.1574) loss_ce_0: 0.5952 (0.5821) loss_bbox_0: 0.2999 (0.2924)
loss_giou_0: 0.1812 (0.1639) loss_ce_1: 0.4500 (0.4439) loss_bbox_1: 0.2924
(0.2857) loss_giou_1: 0.1502 (0.1587) loss_ce_enc: 0.7565 (0.7464)
loss_bbox_enc: 0.5540 (0.5689) loss_giou_enc: 0.2881 (0.3048)
loss_ce_unscaled: 0.4286 (0.4361) class_error_unscaled: 0.0000 (2.1678)
loss_bbox_unscaled: 0.0493 (0.0550) loss_giou_unscaled: 0.0699 (0.0787)
cardinality_error_unscaled: 3890.2500 (3697.5682) loss_ce_0_unscaled: 0.5952
(0.5821) loss_bbox_0_unscaled: 0.0600 (0.0585) loss_giou_0_unscaled: 0.0906
(0.0819) cardinality_error_0_unscaled: 3719.7500 (3532.7727)
loss_ce_1_unscaled: 0.4500 (0.4439) loss_bbox_1_unscaled: 0.0585 (0.0571)
loss_giou_1_unscaled: 0.0751 (0.0794) cardinality_error_1_unscaled: 3870.0000
(3661.5000) loss_ce_enc_unscaled: 0.7565 (0.7464) loss_bbox_enc_unscaled:
0.1108 (0.1138) loss_giou_enc_unscaled: 0.1440 (0.1524)
cardinality_error_enc_unscaled: 3765.2500 (3512.9773) time: 7.0250 data:
0.1391 max mem: 9284
Epoch: [9] [20/87] eta: 0:07:52 lr: 0.000100 class_error: 0.00 loss: 4.0806
(4.3059) loss_ce: 0.4240 (0.4000) loss_bbox: 0.2520 (0.2707) loss_giou:
0.1507 (0.1582) loss_ce_0: 0.5782 (0.5687) loss_bbox_0: 0.2999 (0.2890)
loss_giou_0: 0.1812 (0.1661) loss_ce_1: 0.4321 (0.4162) loss_bbox_1: 0.2764
(0.2820) loss_giou_1: 0.1603 (0.1615) loss_ce_enc: 0.7322 (0.7230)
loss_bbox_enc: 0.5540 (0.5681) loss_giou_enc: 0.2900 (0.3025)
loss_ce_unscaled: 0.4240 (0.4000) class_error_unscaled: 0.0000 (2.0879)
loss_bbox_unscaled: 0.0504 (0.0541) loss_giou_unscaled: 0.0753 (0.0791)
cardinality_error_unscaled: 3841.0000 (3607.7262) loss_ce_0_unscaled: 0.5782
(0.5687) loss_bbox_0_unscaled: 0.0600 (0.0578) loss_giou_0_unscaled: 0.0906
(0.0830) cardinality_error_0_unscaled: 3410.7500 (3398.4524)
loss_ce_1_unscaled: 0.4321 (0.4162) loss_bbox_1_unscaled: 0.0553 (0.0564)
loss_giou_1_unscaled: 0.0801 (0.0808) cardinality_error_1_unscaled: 3794.2500
(3547.0119) loss_ce_enc_unscaled: 0.7322 (0.7230) loss_bbox_enc_unscaled:
0.1108 (0.1136) loss_giou_enc_unscaled: 0.1450 (0.1512)
cardinality_error_enc_unscaled: 3598.0000 (3398.4048) time: 6.9851 data:
0.0450 max mem: 9284
Epoch: [9] [30/87] eta: 0:06:44 lr: 0.000100 class_error: -0.00 loss:
4.1187 (4.2997) loss_ce: 0.3473 (0.3944) loss_bbox: 0.2520 (0.2761)
loss_giou: 0.1603 (0.1638) loss_ce_0: 0.5750 (0.5696) loss_bbox_0: 0.2648
(0.2970) loss_giou_0: 0.1647 (0.1723) loss_ce_1: 0.3669 (0.4112) loss_bbox_1:
0.2552 (0.2880) loss_giou_1: 0.1637 (0.1671) loss_ce_enc: 0.6693 (0.7085)
loss_bbox_enc: 0.5190 (0.5527) loss_giou_enc: 0.2963 (0.2990)
loss_ce_unscaled: 0.3473 (0.3944) class_error_unscaled: 0.0000 (1.8083)
loss_bbox_unscaled: 0.0504 (0.0552) loss_giou_unscaled: 0.0802 (0.0819)
cardinality_error_unscaled: 3856.0000 (3653.3629) loss_ce_0_unscaled: 0.5750

(0.5696) loss_bbox_0_unscaled: 0.0530 (0.0594) loss_giou_0_unscaled: 0.0823
(0.0861) cardinality_error_0_unscaled: 3410.7500 (3451.7903)
loss_ce_1_unscaled: 0.3669 (0.4112) loss_bbox_1_unscaled: 0.0510 (0.0576)
loss_giou_1_unscaled: 0.0818 (0.0835) cardinality_error_1_unscaled: 3794.2500
(3594.2823) loss_ce_enc_unscaled: 0.6693 (0.7085) loss_bbox_enc_unscaled:
0.1038 (0.1105) loss_giou_enc_unscaled: 0.1481 (0.1495)
cardinality_error_enc_unscaled: 3700.5000 (3454.8387) time: 7.1332 data:
0.0479 max mem: 9284
Epoch: [9] [40/87] eta: 0:05:35 lr: 0.000100 class_error: -0.00 loss:
4.1187 (4.2585) loss_ce: 0.3596 (0.3875) loss_bbox: 0.2494 (0.2789)
loss_giou: 0.1420 (0.1639) loss_ce_0: 0.5750 (0.5689) loss_bbox_0: 0.2648
(0.2925) loss_giou_0: 0.1508 (0.1719) loss_ce_1: 0.4072 (0.4055) loss_bbox_1:
0.2362 (0.2839) loss_giou_1: 0.1428 (0.1654) loss_ce_enc: 0.6578 (0.7069)
loss_bbox_enc: 0.5190 (0.5390) loss_giou_enc: 0.2963 (0.2941)
loss_ce_unscaled: 0.3596 (0.3875) class_error_unscaled: 0.0000 (1.7049)
loss_bbox_unscaled: 0.0499 (0.0558) loss_giou_unscaled: 0.0710 (0.0819)
cardinality_error_unscaled: 3874.0000 (3650.5915) loss_ce_0_unscaled: 0.5750
(0.5689) loss_bbox_0_unscaled: 0.0530 (0.0585) loss_giou_0_unscaled: 0.0754
(0.0860) cardinality_error_0_unscaled: 3662.0000 (3413.7073)
loss_ce_1_unscaled: 0.4072 (0.4055) loss_bbox_1_unscaled: 0.0472 (0.0568)
loss_giou_1_unscaled: 0.0714 (0.0827) cardinality_error_1_unscaled: 3857.0000
(3586.4146) loss_ce_enc_unscaled: 0.6578 (0.7069) loss_bbox_enc_unscaled:
0.1038 (0.1078) loss_giou_enc_unscaled: 0.1481 (0.1470)
cardinality_error_enc_unscaled: 3700.5000 (3419.3110) time: 7.2157 data:
0.0758 max mem: 9284
Epoch: [9] [50/87] eta: 0:04:23 lr: 0.000100 class_error: 0.00 loss: 4.0080
(4.2044) loss_ce: 0.3728 (0.3860) loss_bbox: 0.2494 (0.2733) loss_giou:
0.1530 (0.1637) loss_ce_0: 0.5502 (0.5632) loss_bbox_0: 0.2501 (0.2869)
loss_giou_0: 0.1508 (0.1702) loss_ce_1: 0.3932 (0.4041) loss_bbox_1: 0.2352
(0.2747) loss_giou_1: 0.1445 (0.1632) loss_ce_enc: 0.6664 (0.6991)
loss_bbox_enc: 0.4895 (0.5304) loss_giou_enc: 0.2716 (0.2897)
loss_ce_unscaled: 0.3728 (0.3860) class_error_unscaled: 0.0000 (1.4812)
loss_bbox_unscaled: 0.0499 (0.0547) loss_giou_unscaled: 0.0765 (0.0818)
cardinality_error_unscaled: 3852.2500 (3676.2745) loss_ce_0_unscaled: 0.5502
(0.5632) loss_bbox_0_unscaled: 0.0500 (0.0574) loss_giou_0_unscaled: 0.0754
(0.0851) cardinality_error_0_unscaled: 3516.2500 (3420.5588)
loss_ce_1_unscaled: 0.3932 (0.4041) loss_bbox_1_unscaled: 0.0470 (0.0549)
loss_giou_1_unscaled: 0.0722 (0.0816) cardinality_error_1_unscaled: 3779.7500
(3608.5000) loss_ce_enc_unscaled: 0.6664 (0.6991) loss_bbox_enc_unscaled:
0.0979 (0.1061) loss_giou_enc_unscaled: 0.1358 (0.1448)
cardinality_error_enc_unscaled: 3398.0000 (3427.6127) time: 7.1734 data:
0.0758 max mem: 9284
Epoch: [9] [60/87] eta: 0:03:12 lr: 0.000100 class_error: 0.00 loss: 4.0080
(4.2314) loss_ce: 0.3606 (0.3835) loss_bbox: 0.2561 (0.2819) loss_giou:
0.1582 (0.1723) loss_ce_0: 0.4973 (0.5545) loss_bbox_0: 0.2585 (0.2958)
loss_giou_0: 0.1739 (0.1794) loss_ce_1: 0.3633 (0.4015) loss_bbox_1: 0.2551
(0.2839) loss_giou_1: 0.1600 (0.1726) loss_ce_enc: 0.6429 (0.6902)
loss_bbox_enc: 0.4502 (0.5255) loss_giou_enc: 0.2619 (0.2904)

loss_ce_unscaled: 0.3606 (0.3835) class_error_unscaled: 0.0000 (1.2384)
loss_bbox_unscaled: 0.0512 (0.0564) loss_giou_unscaled: 0.0791 (0.0862)
cardinality_error_unscaled: 3858.5000 (3682.9508) loss_ce_0_unscaled: 0.4973
(0.5545) loss_bbox_0_unscaled: 0.0517 (0.0592) loss_giou_0_unscaled: 0.0869
(0.0897) cardinality_error_0_unscaled: 3562.2500 (3409.3689)
loss_ce_1_unscaled: 0.3633 (0.4015) loss_bbox_1_unscaled: 0.0510 (0.0568)
loss_giou_1_unscaled: 0.0800 (0.0863) cardinality_error_1_unscaled: 3812.0000
(3608.5000) loss_ce_enc_unscaled: 0.6429 (0.6902) loss_bbox_enc_unscaled:
0.0900 (0.1051) loss_giou_enc_unscaled: 0.1310 (0.1452)
cardinality_error_enc_unscaled: 3645.5000 (3403.2295) time: 7.1325 data:
0.0482 max mem: 9284
Epoch: [9] [70/87] eta: 0:02:01 lr: 0.000100 class_error: 0.00 loss: 4.4087
(4.2360) loss_ce: 0.3690 (0.3843) loss_bbox: 0.2735 (0.2826) loss_giou:
0.1852 (0.1721) loss_ce_0: 0.5166 (0.5564) loss_bbox_0: 0.2706 (0.2966)
loss_giou_0: 0.1873 (0.1795) loss_ce_1: 0.3942 (0.4000) loss_bbox_1: 0.2893
(0.2847) loss_giou_1: 0.1862 (0.1728) loss_ce_enc: 0.6504 (0.6996)
loss_bbox_enc: 0.4764 (0.5201) loss_giou_enc: 0.2547 (0.2873)
loss_ce_unscaled: 0.3690 (0.3843) class_error_unscaled: 0.0000 (1.0640)
loss_bbox_unscaled: 0.0547 (0.0565) loss_giou_unscaled: 0.0926 (0.0860)
cardinality_error_unscaled: 3852.5000 (3670.2077) loss_ce_0_unscaled: 0.5166
(0.5564) loss_bbox_0_unscaled: 0.0541 (0.0593) loss_giou_0_unscaled: 0.0936
(0.0897) cardinality_error_0_unscaled: 3466.2500 (3379.2324)
loss_ce_1_unscaled: 0.3942 (0.4000) loss_bbox_1_unscaled: 0.0579 (0.0569)
loss_giou_1_unscaled: 0.0931 (0.0864) cardinality_error_1_unscaled: 3842.5000
(3598.8451) loss_ce_enc_unscaled: 0.6504 (0.6996) loss_bbox_enc_unscaled:
0.0953 (0.1040) loss_giou_enc_unscaled: 0.1273 (0.1437)
cardinality_error_enc_unscaled: 3546.0000 (3371.5915) time: 7.1828 data:
0.0479 max mem: 9284
Epoch: [9] [80/87] eta: 0:00:50 lr: 0.000100 class_error: -0.00 loss:
3.9841 (4.2167) loss_ce: 0.3690 (0.3812) loss_bbox: 0.2692 (0.2804)
loss_giou: 0.1679 (0.1702) loss_ce_0: 0.5172 (0.5562) loss_bbox_0: 0.2613
(0.2954) loss_giou_0: 0.1820 (0.1777) loss_ce_1: 0.3851 (0.3985) loss_bbox_1:
0.2800 (0.2820) loss_giou_1: 0.1613 (0.1708) loss_ce_enc: 0.7392 (0.6993)
loss_bbox_enc: 0.4998 (0.5190) loss_giou_enc: 0.2492 (0.2860)
loss_ce_unscaled: 0.3690 (0.3812) class_error_unscaled: 0.0000 (0.9326)
loss_bbox_unscaled: 0.0538 (0.0561) loss_giou_unscaled: 0.0840 (0.0851)
cardinality_error_unscaled: 3868.2500 (3680.4074) loss_ce_0_unscaled: 0.5172
(0.5562) loss_bbox_0_unscaled: 0.0523 (0.0591) loss_giou_0_unscaled: 0.0910
(0.0889) cardinality_error_0_unscaled: 3666.2500 (3392.6080)
loss_ce_1_unscaled: 0.3851 (0.3985) loss_bbox_1_unscaled: 0.0560 (0.0564)
loss_giou_1_unscaled: 0.0807 (0.0854) cardinality_error_1_unscaled: 3844.5000
(3615.8364) loss_ce_enc_unscaled: 0.7392 (0.6993) loss_bbox_enc_unscaled:
0.1000 (0.1038) loss_giou_enc_unscaled: 0.1246 (0.1430)
cardinality_error_enc_unscaled: 3721.5000 (3382.7654) time: 7.1897 data:
0.0477 max mem: 9284
Epoch: [9] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 3.9924
(4.2458) loss_ce: 0.3690 (0.3852) loss_bbox: 0.2692 (0.2851) loss_giou:
0.1650 (0.1704) loss_ce_0: 0.5263 (0.5609) loss_bbox_0: 0.2706 (0.2982)

loss_giou_0: 0.1570 (0.1774) loss_ce_1: 0.3970 (0.4021) loss_bbox_1: 0.2800 (0.2869) loss_giou_1: 0.1613 (0.1707) loss_ce_enc: 0.7263 (0.7016) loss_bbox_enc: 0.5241 (0.5217) loss_giou_enc: 0.2651 (0.2854) loss_ce_unscaled: 0.3690 (0.3852) class_error_unscaled: 0.0000 (0.8683) loss_bbox_unscaled: 0.0538 (0.0570) loss_giou_unscaled: 0.0825 (0.0852) cardinality_error_unscaled: 3872.0000 (3675.8534) loss_ce_0_unscaled: 0.5263 (0.5609) loss_bbox_0_unscaled: 0.0541 (0.0596) loss_giou_0_unscaled: 0.0785 (0.0887) cardinality_error_0_unscaled: 3698.7500 (3373.2874) loss_ce_1_unscaled: 0.3970 (0.4021) loss_bbox_1_unscaled: 0.0560 (0.0574) loss_giou_1_unscaled: 0.0807 (0.0853) cardinality_error_1_unscaled: 3844.5000 (3612.9109) loss_ce_enc_unscaled: 0.7263 (0.7016) loss_bbox_enc_unscaled: 0.1048 (0.1043) loss_giou_enc_unscaled: 0.1325 (0.1427) cardinality_error_enc_unscaled: 3721.5000 (3366.0402) time: 7.1781 data: 0.0480 max mem: 9284
Epoch: [9] Total time: 0:10:21 (7.1489 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 3.9924 (4.2458) loss_ce: 0.3690 (0.3852) loss_bbox: 0.2692 (0.2851) loss_giou: 0.1650 (0.1704) loss_ce_0: 0.5263 (0.5609) loss_bbox_0: 0.2706 (0.2982) loss_giou_0: 0.1570 (0.1774) loss_ce_1: 0.3970 (0.4021) loss_bbox_1: 0.2800 (0.2869) loss_giou_1: 0.1613 (0.1707) loss_ce_enc: 0.7263 (0.7016) loss_bbox_enc: 0.5241 (0.5217) loss_giou_enc: 0.2651 (0.2854) loss_ce_unscaled: 0.3690 (0.3852) class_error_unscaled: 0.0000 (0.8683) loss_bbox_unscaled: 0.0538 (0.0570) loss_giou_unscaled: 0.0825 (0.0852) cardinality_error_unscaled: 3872.0000 (3675.8534) loss_ce_0_unscaled: 0.5263 (0.5609) loss_bbox_0_unscaled: 0.0541 (0.0596) loss_giou_0_unscaled: 0.0785 (0.0887) cardinality_error_0_unscaled: 3698.7500 (3373.2874) loss_ce_1_unscaled: 0.3970 (0.4021) loss_bbox_1_unscaled: 0.0560 (0.0574) loss_giou_1_unscaled: 0.0807 (0.0853) cardinality_error_1_unscaled: 3844.5000 (3612.9109) loss_ce_enc_unscaled: 0.7263 (0.7016) loss_bbox_enc_unscaled: 0.1048 (0.1043) loss_giou_enc_unscaled: 0.1325 (0.1427) cardinality_error_enc_unscaled: 3721.5000 (3366.0402)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 3.9663 (3.9663) loss_ce: 0.3047 (0.3047) loss_bbox: 0.2328 (0.2328) loss_giou: 0.1351 (0.1351) loss_ce_0: 0.4902 (0.4902) loss_bbox_0: 0.2293 (0.2293) loss_giou_0: 0.1285 (0.1285) loss_ce_1: 0.3164 (0.3164) loss_bbox_1: 0.2426 (0.2426) loss_giou_1: 0.1452 (0.1452) loss_ce_enc: 0.7930 (0.7930) loss_bbox_enc: 0.6485 (0.6485) loss_giou_enc: 0.3000 (0.3000) loss_ce_unscaled: 0.3047 (0.3047) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0466 (0.0466) loss_giou_unscaled: 0.0676 (0.0676) cardinality_error_unscaled: 276.7500 (276.7500) loss_ce_0_unscaled: 0.4902 (0.4902) loss_bbox_0_unscaled: 0.0459 (0.0459) loss_giou_0_unscaled: 0.0642 (0.0642) cardinality_error_0_unscaled: 212.0000 (212.0000) loss_ce_1_unscaled: 0.3164 (0.3164) loss_bbox_1_unscaled: 0.0485 (0.0485) loss_giou_1_unscaled: 0.0726 (0.0726) cardinality_error_1_unscaled: 267.0000 (267.0000) loss_ce_enc_unscaled: 0.7930 (0.7930) loss_bbox_enc_unscaled: 0.1297 (0.1297) loss_giou_enc_unscaled: 0.1500 (0.1500) cardinality_error_enc_unscaled: 223.5000 (223.5000) time: 0.7176 data: 0.3521 max mem: 9284
Test: [10/38] eta: 0:00:08 class_error: 14.29 loss: 5.1109 (5.2184)

87

loss_ce: 0.6484 (0.5577) loss_bbox: 0.2814 (0.3818) loss_giou: 0.1969 (0.2168)
loss_ce_0: 0.7109 (0.7136) loss_bbox_0: 0.3394 (0.3293) loss_giou_0: 0.1775
(0.2056) loss_ce_1: 0.6055 (0.5902) loss_bbox_1: 0.2785 (0.3281) loss_giou_1:
0.1896 (0.2025) loss_ce_enc: 0.8633 (0.8604) loss_bbox_enc: 0.5493 (0.5316)
loss_giou_enc: 0.2732 (0.3007) loss_ce_unscaled: 0.6484 (0.5577)
class_error_unscaled: 0.0000 (4.4805) loss_bbox_unscaled: 0.0563 (0.0764)
loss_giou_unscaled: 0.0984 (0.1084) cardinality_error_unscaled: 291.2500
(283.0227) loss_ce_0_unscaled: 0.7109 (0.7136) loss_bbox_0_unscaled: 0.0679
(0.0659) loss_giou_0_unscaled: 0.0887 (0.1028) cardinality_error_0_unscaled:
249.5000 (253.7955) loss_ce_1_unscaled: 0.6055 (0.5902) loss_bbox_1_unscaled:
0.0557 (0.0656) loss_giou_1_unscaled: 0.0948 (0.1013)
cardinality_error_1_unscaled: 283.0000 (279.7955) loss_ce_enc_unscaled: 0.8633
(0.8604) loss_bbox_enc_unscaled: 0.1099 (0.1063) loss_giou_enc_unscaled:
0.1366 (0.1503) cardinality_error_enc_unscaled: 232.2500 (251.3864) time:
0.3180 data: 0.0478 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.0718 (5.0172) loss_ce:
0.5938 (0.5411) loss_bbox: 0.3139 (0.3575) loss_giou: 0.1793 (0.2014)
loss_ce_0: 0.6992 (0.6977) loss_bbox_0: 0.3256 (0.3232) loss_giou_0: 0.1775
(0.1947) loss_ce_1: 0.5820 (0.5622) loss_bbox_1: 0.2831 (0.3291) loss_giou_1:
0.1549 (0.1939) loss_ce_enc: 0.7852 (0.8082) loss_bbox_enc: 0.5120 (0.5167)
loss_giou_enc: 0.2578 (0.2914) loss_ce_unscaled: 0.5938 (0.5411)
class_error_unscaled: 0.0000 (4.8073) loss_bbox_unscaled: 0.0628 (0.0715)
loss_giou_unscaled: 0.0896 (0.1007) cardinality_error_unscaled: 291.2500
(280.4167) loss_ce_0_unscaled: 0.6992 (0.6977) loss_bbox_0_unscaled: 0.0651
(0.0646) loss_giou_0_unscaled: 0.0887 (0.0973) cardinality_error_0_unscaled:
249.5000 (248.2262) loss_ce_1_unscaled: 0.5820 (0.5622) loss_bbox_1_unscaled:
0.0566 (0.0658) loss_giou_1_unscaled: 0.0775 (0.0970)
cardinality_error_1_unscaled: 284.7500 (276.9643) loss_ce_enc_unscaled: 0.7852
(0.8082) loss_bbox_enc_unscaled: 0.1024 (0.1033) loss_giou_enc_unscaled:
0.1289 (0.1457) cardinality_error_enc_unscaled: 232.2500 (240.9405) time:
0.2910 data: 0.0204 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 22.22 loss: 4.2902 (4.7878)
loss_ce: 0.5078 (0.5052) loss_bbox: 0.2231 (0.3184) loss_giou: 0.1716 (0.1922)
loss_ce_0: 0.6289 (0.6724) loss_bbox_0: 0.2610 (0.3111) loss_giou_0: 0.1819
(0.1934) loss_ce_1: 0.5039 (0.5319) loss_bbox_1: 0.2341 (0.3040) loss_giou_1:
0.1549 (0.1891) loss_ce_enc: 0.7188 (0.7915) loss_bbox_enc: 0.4689 (0.4934)
loss_giou_enc: 0.2483 (0.2853) loss_ce_unscaled: 0.5078 (0.5052)
class_error_unscaled: 0.0000 (4.2666) loss_bbox_unscaled: 0.0446 (0.0637)
loss_giou_unscaled: 0.0858 (0.0961) cardinality_error_unscaled: 295.0000
(282.9516) loss_ce_0_unscaled: 0.6289 (0.6724) loss_bbox_0_unscaled: 0.0522
(0.0622) loss_giou_0_unscaled: 0.0909 (0.0967) cardinality_error_0_unscaled:
289.0000 (257.5565) loss_ce_1_unscaled: 0.5039 (0.5319) loss_bbox_1_unscaled:
0.0468 (0.0608) loss_giou_1_unscaled: 0.0775 (0.0945)
cardinality_error_1_unscaled: 293.5000 (279.7984) loss_ce_enc_unscaled: 0.7188
(0.7915) loss_bbox_enc_unscaled: 0.0938 (0.0987) loss_giou_enc_unscaled:
0.1242 (0.1426) cardinality_error_enc_unscaled: 284.2500 (253.3548) time:
0.2938 data: 0.0208 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.4232 (4.8720) loss_ce:

0.4805 (0.5109) loss_bbox: 0.2263 (0.3192) loss_giou: 0.1933 (0.1986)
loss_ce_0: 0.6523 (0.6770) loss_bbox_0: 0.2610 (0.3194) loss_giou_0: 0.1958
(0.2021) loss_ce_1: 0.5195 (0.5385) loss_bbox_1: 0.2364 (0.3078) loss_giou_1:
0.1822 (0.1968) loss_ce_enc: 0.7148 (0.7854) loss_bbox_enc: 0.5030 (0.5171)
loss_giou_enc: 0.2726 (0.2991) loss_ce_unscaled: 0.4805 (0.5109)
class_error_unscaled: 0.0000 (4.1198) loss_bbox_unscaled: 0.0453 (0.0638)
loss_giou_unscaled: 0.0966 (0.0993) cardinality_error_unscaled: 296.2500
(285.4671) loss_ce_0_unscaled: 0.6523 (0.6770) loss_bbox_0_unscaled: 0.0522
(0.0639) loss_giou_0_unscaled: 0.0979 (0.1011) cardinality_error_0_unscaled:
290.0000 (263.2237) loss_ce_1_unscaled: 0.5195 (0.5385) loss_bbox_1_unscaled:
0.0473 (0.0616) loss_giou_1_unscaled: 0.0911 (0.0984)
cardinality_error_1_unscaled: 294.7500 (282.4803) loss_ce_enc_unscaled: 0.7148
(0.7854) loss_bbox_enc_unscaled: 0.1006 (0.1034) loss_giou_enc_unscaled:
0.1363 (0.1496) cardinality_error_enc_unscaled: 294.0000 (260.2237) time:
0.2814 data: 0.0193 max mem: 9284
Test: Total time: 0:00:11 (0.2966 s / it)
Averaged stats: class_error: 0.00 loss: 4.4232 (4.8720) loss_ce: 0.4805
(0.5109) loss_bbox: 0.2263 (0.3192) loss_giou: 0.1933 (0.1986) loss_ce_0:
0.6523 (0.6770) loss_bbox_0: 0.2610 (0.3194) loss_giou_0: 0.1958 (0.2021)
loss_ce_1: 0.5195 (0.5385) loss_bbox_1: 0.2364 (0.3078) loss_giou_1: 0.1822
(0.1968) loss_ce_enc: 0.7148 (0.7854) loss_bbox_enc: 0.5030 (0.5171)
loss_giou_enc: 0.2726 (0.2991) loss_ce_unscaled: 0.4805 (0.5109)
class_error_unscaled: 0.0000 (4.1198) loss_bbox_unscaled: 0.0453 (0.0638)
loss_giou_unscaled: 0.0966 (0.0993) cardinality_error_unscaled: 296.2500
(285.4671) loss_ce_0_unscaled: 0.6523 (0.6770) loss_bbox_0_unscaled: 0.0522
(0.0639) loss_giou_0_unscaled: 0.0979 (0.1011) cardinality_error_0_unscaled:
290.0000 (263.2237) loss_ce_1_unscaled: 0.5195 (0.5385) loss_bbox_1_unscaled:
0.0473 (0.0616) loss_giou_1_unscaled: 0.0911 (0.0984)
cardinality_error_1_unscaled: 294.7500 (282.4803) loss_ce_enc_unscaled: 0.7148
(0.7854) loss_bbox_enc_unscaled: 0.1006 (0.1034) loss_giou_enc_unscaled:
0.1363 (0.1496) cardinality_error_enc_unscaled: 294.0000 (260.2237)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.762
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.932
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.849
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.350
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.771
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.636
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.856
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.887
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.680
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.890
Test: [0/38] eta: 0:00:24 class_error: 0.00 loss: 4.1921 (4.1921) loss_ce:
0.3145 (0.3145) loss_bbox: 0.2281 (0.2281) loss_giou: 0.1441 (0.1441)

loss_ce_0: 0.4512 (0.4512) loss_bbox_0: 0.2439 (0.2439) loss_giou_0: 0.1572 (0.1572) loss_ce_1: 0.3145 (0.3145) loss_bbox_1: 0.2327 (0.2327) loss_giou_1: 0.1440 (0.1440) loss_ce_enc: 0.8125 (0.8125) loss_bbox_enc: 0.7762 (0.7762) loss_giou_enc: 0.3733 (0.3733) loss_ce_unscaled: 0.3145 (0.3145) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0456 (0.0456) loss_giou_unscaled: 0.0720 (0.0720) cardinality_error_unscaled: 259.2500 (259.2500) loss_ce_0_unscaled: 0.4512 (0.4512) loss_bbox_0_unscaled: 0.0488 (0.0488) loss_giou_0_unscaled: 0.0786 (0.0786) cardinality_error_0_unscaled: 191.7500 (191.7500) loss_ce_1_unscaled: 0.3145 (0.3145) loss_bbox_1_unscaled: 0.0465 (0.0465) loss_giou_1_unscaled: 0.0720 (0.0720) cardinality_error_1_unscaled: 239.0000 (239.0000) loss_ce_enc_unscaled: 0.8125 (0.8125) loss_bbox_enc_unscaled: 0.1552 (0.1552) loss_giou_enc_unscaled: 0.1867 (0.1867) cardinality_error_enc_unscaled: 215.7500 (215.7500) time: 0.6420 data: 0.3354 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 0.00 loss: 4.9409 (4.8586) loss_ce: 0.5508 (0.5849) loss_bbox: 0.2387 (0.2944) loss_giou: 0.1800 (0.1951) loss_ce_0: 0.6016 (0.6172) loss_bbox_0: 0.2991 (0.3271) loss_giou_0: 0.2289 (0.2062) loss_ce_1: 0.5938 (0.5589) loss_bbox_1: 0.2543 (0.2998) loss_giou_1: 0.1724 (0.1988) loss_ce_enc: 0.8125 (0.8054) loss_bbox_enc: 0.4997 (0.4812) loss_giou_enc: 0.2695 (0.2896) loss_ce_unscaled: 0.5508 (0.5849) class_error_unscaled: 0.0000 (4.3182) loss_bbox_unscaled: 0.0477 (0.0589) loss_giou_unscaled: 0.0900 (0.0976) cardinality_error_unscaled: 272.7500 (275.5909) loss_ce_0_unscaled: 0.6016 (0.6172) loss_bbox_0_unscaled: 0.0598 (0.0654) loss_giou_0_unscaled: 0.1144 (0.1031) cardinality_error_0_unscaled: 226.5000 (247.5909) loss_ce_1_unscaled: 0.5938 (0.5589) loss_bbox_1_unscaled: 0.0509 (0.0600) loss_giou_1_unscaled: 0.0862 (0.0994) cardinality_error_1_unscaled: 274.0000 (268.6364) loss_ce_enc_unscaled: 0.8125 (0.8054) loss_bbox_enc_unscaled: 0.0999 (0.0962) loss_giou_enc_unscaled: 0.1347 (0.1448) cardinality_error_enc_unscaled: 223.2500 (244.4773) time: 0.3677 data: 0.0459 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.7624 (4.5856) loss_ce: 0.4277 (0.5088) loss_bbox: 0.2765 (0.3136) loss_giou: 0.1587 (0.1888) loss_ce_0: 0.5977 (0.5876) loss_bbox_0: 0.2965 (0.3277) loss_giou_0: 0.1891 (0.1956) loss_ce_1: 0.4707 (0.4900) loss_bbox_1: 0.2543 (0.3046) loss_giou_1: 0.1546 (0.1871) loss_ce_enc: 0.7422 (0.7708) loss_bbox_enc: 0.4339 (0.4425) loss_giou_enc: 0.2640 (0.2683) loss_ce_unscaled: 0.4277 (0.5088) class_error_unscaled: 0.0000 (4.3254) loss_bbox_unscaled: 0.0553 (0.0627) loss_giou_unscaled: 0.0793 (0.0944) cardinality_error_unscaled: 272.7500 (272.0000) loss_ce_0_unscaled: 0.5977 (0.5876) loss_bbox_0_unscaled: 0.0593 (0.0655) loss_giou_0_unscaled: 0.0946 (0.0978) cardinality_error_0_unscaled: 227.2500 (239.8929) loss_ce_1_unscaled: 0.4707 (0.4900) loss_bbox_1_unscaled: 0.0509 (0.0609) loss_giou_1_unscaled: 0.0773 (0.0936) cardinality_error_1_unscaled: 274.0000 (264.1548) loss_ce_enc_unscaled: 0.7422 (0.7708) loss_bbox_enc_unscaled: 0.0868 (0.0885) loss_giou_enc_unscaled: 0.1320 (0.1342) cardinality_error_enc_unscaled: 220.5000 (232.0238) time: 0.3256 data: 0.0191 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.0371 (4.4007) loss_ce: 0.3887 (0.4662) loss_bbox: 0.2571 (0.2968) loss_giou: 0.1587 (0.1867)

loss_ce_0: 0.5508 (0.5715) loss_bbox_0: 0.2605 (0.3082) loss_giou_0: 0.1619 (0.1904) loss_ce_1: 0.3848 (0.4573) loss_bbox_1: 0.2560 (0.2923) loss_giou_1: 0.1407 (0.1860) loss_ce_enc: 0.7148 (0.7476) loss_bbox_enc: 0.3858 (0.4309) loss_giou_enc: 0.2488 (0.2667) loss_ce_unscaled: 0.3887 (0.4662) class_error_unscaled: 0.0000 (2.9301) loss_bbox_unscaled: 0.0514 (0.0594) loss_giou_unscaled: 0.0793 (0.0934) cardinality_error_unscaled: 295.7500 (276.7016) loss_ce_0_unscaled: 0.5508 (0.5715) loss_bbox_0_unscaled: 0.0521 (0.0616) loss_giou_0_unscaled: 0.0809 (0.0952) cardinality_error_0_unscaled: 275.5000 (250.8952) loss_ce_1_unscaled: 0.3848 (0.4573) loss_bbox_1_unscaled: 0.0512 (0.0585) loss_giou_1_unscaled: 0.0703 (0.0930) cardinality_error_1_unscaled: 290.2500 (269.5242) loss_ce_enc_unscaled: 0.7148 (0.7476) loss_bbox_enc_unscaled: 0.0772 (0.0862) loss_giou_enc_unscaled: 0.1244 (0.1334) cardinality_error_enc_unscaled: 265.0000 (245.5565) time: 0.3032 data: 0.0200 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.0640 (4.4380) loss_ce: 0.3848 (0.4604) loss_bbox: 0.2415 (0.2961) loss_giou: 0.1782 (0.1925) loss_ce_0: 0.5547 (0.5751) loss_bbox_0: 0.2605 (0.3185) loss_giou_0: 0.1928 (0.1994) loss_ce_1: 0.4180 (0.4571) loss_bbox_1: 0.2640 (0.2957) loss_giou_1: 0.1869 (0.1929) loss_ce_enc: 0.6797 (0.7321) loss_bbox_enc: 0.4017 (0.4432) loss_giou_enc: 0.2689 (0.2750) loss_ce_unscaled: 0.3848 (0.4604) class_error_unscaled: 0.0000 (2.3904) loss_bbox_unscaled: 0.0483 (0.0592) loss_giou_unscaled: 0.0891 (0.0962) cardinality_error_unscaled: 297.0000 (280.3487) loss_ce_0_unscaled: 0.5547 (0.5751) loss_bbox_0_unscaled: 0.0521 (0.0637) loss_giou_0_unscaled: 0.0964 (0.0997) cardinality_error_0_unscaled: 284.5000 (257.3355) loss_ce_1_unscaled: 0.4180 (0.4571) loss_bbox_1_unscaled: 0.0528 (0.0591) loss_giou_1_unscaled: 0.0934 (0.0964) cardinality_error_1_unscaled: 294.0000 (274.1184) loss_ce_enc_unscaled: 0.6797 (0.7321) loss_bbox_enc_unscaled: 0.0803 (0.0886) loss_giou_enc_unscaled: 0.1345 (0.1375) cardinality_error_enc_unscaled: 287.0000 (253.6250) time: 0.2930 data: 0.0189 max mem: 9284
Test: Total time: 0:00:12 (0.3187 s / it)
Averaged stats: class_error: 0.00 loss: 4.0640 (4.4380) loss_ce: 0.3848 (0.4604) loss_bbox: 0.2415 (0.2961) loss_giou: 0.1782 (0.1925) loss_ce_0: 0.5547 (0.5751) loss_bbox_0: 0.2605 (0.3185) loss_giou_0: 0.1928 (0.1994) loss_ce_1: 0.4180 (0.4571) loss_bbox_1: 0.2640 (0.2957) loss_giou_1: 0.1869 (0.1929) loss_ce_enc: 0.6797 (0.7321) loss_bbox_enc: 0.4017 (0.4432) loss_giou_enc: 0.2689 (0.2750) loss_ce_unscaled: 0.3848 (0.4604) class_error_unscaled: 0.0000 (2.3904) loss_bbox_unscaled: 0.0483 (0.0592) loss_giou_unscaled: 0.0891 (0.0962) cardinality_error_unscaled: 297.0000 (280.3487) loss_ce_0_unscaled: 0.5547 (0.5751) loss_bbox_0_unscaled: 0.0521 (0.0637) loss_giou_0_unscaled: 0.0964 (0.0997) cardinality_error_0_unscaled: 284.5000 (257.3355) loss_ce_1_unscaled: 0.4180 (0.4571) loss_bbox_1_unscaled: 0.0528 (0.0591) loss_giou_1_unscaled: 0.0934 (0.0964) cardinality_error_1_unscaled: 294.0000 (274.1184) loss_ce_enc_unscaled: 0.6797 (0.7321) loss_bbox_enc_unscaled: 0.0803 (0.0886) loss_giou_enc_unscaled: 0.1345 (0.1375) cardinality_error_enc_unscaled: 287.0000 (253.6250)
Accumulating evaluation results…
DONE (t=0.26s).

```
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.799
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.947
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.873
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.380
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.809
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.631
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.873
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.896
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.613
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.901
Grad accum steps:  4
Total batch size:  16
LENGTH OF DATA LOADER: 87
Epoch: [10] [ 0/87] eta: 0:12:13  lr: 0.000100  class_error: 0.00  loss:
5.9279 (5.9279)  loss_ce: 0.5923 (0.5923)  loss_bbox: 0.4324 (0.4324)
loss_giou: 0.3500 (0.3500)  loss_ce_0: 0.6468 (0.6468)  loss_bbox_0: 0.4615
(0.4615)  loss_giou_0: 0.3694 (0.3694)  loss_ce_1: 0.5504 (0.5504)  loss_bbox_1:
0.4160 (0.4160)  loss_giou_1: 0.3473 (0.3473)  loss_ce_enc: 0.7312 (0.7312)
loss_bbox_enc: 0.6172 (0.6172)  loss_giou_enc: 0.4133 (0.4133)
loss_ce_unscaled: 0.5923 (0.5923)  class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0865 (0.0865)  loss_giou_unscaled: 0.1750 (0.1750)
cardinality_error_unscaled: 3485.7500 (3485.7500)  loss_ce_0_unscaled: 0.6468
(0.6468)  loss_bbox_0_unscaled: 0.0923 (0.0923)  loss_giou_0_unscaled: 0.1847
(0.1847)  cardinality_error_0_unscaled: 2824.5000 (2824.5000)
loss_ce_1_unscaled: 0.5504 (0.5504)  loss_bbox_1_unscaled: 0.0832 (0.0832)
loss_giou_1_unscaled: 0.1737 (0.1737)  cardinality_error_1_unscaled: 3241.2500
(3241.2500)  loss_ce_enc_unscaled: 0.7312 (0.7312)  loss_bbox_enc_unscaled:
0.1234 (0.1234)  loss_giou_enc_unscaled: 0.2066 (0.2066)
cardinality_error_enc_unscaled: 2912.5000 (2912.5000)  time: 8.4291  data:
1.0708  max mem: 9284
Epoch: [10] [10/87] eta: 0:09:15  lr: 0.000100  class_error: 0.00  loss:
3.9183 (4.0974)  loss_ce: 0.3845 (0.4243)  loss_bbox: 0.2079 (0.2415)
loss_giou: 0.1656 (0.1793)  loss_ce_0: 0.5377 (0.5299)  loss_bbox_0: 0.2591
(0.2668)  loss_giou_0: 0.1876 (0.1956)  loss_ce_1: 0.4029 (0.4319)  loss_bbox_1:
0.2232 (0.2375)  loss_giou_1: 0.1680 (0.1839)  loss_ce_enc: 0.6600 (0.6462)
loss_bbox_enc: 0.4482 (0.4726)  loss_giou_enc: 0.2579 (0.2879)
loss_ce_unscaled: 0.3845 (0.4243)  class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0416 (0.0483)  loss_giou_unscaled: 0.0828 (0.0896)
cardinality_error_unscaled: 3889.2500 (3799.1818)  loss_ce_0_unscaled: 0.5377
(0.5299)  loss_bbox_0_unscaled: 0.0518 (0.0534)  loss_giou_0_unscaled: 0.0938
(0.0978)  cardinality_error_0_unscaled: 3863.5000 (3651.1591)
loss_ce_1_unscaled: 0.4029 (0.4319)  loss_bbox_1_unscaled: 0.0446 (0.0475)
loss_giou_1_unscaled: 0.0840 (0.0919)  cardinality_error_1_unscaled: 3885.7500
(3765.9091)  loss_ce_enc_unscaled: 0.6600 (0.6462)  loss_bbox_enc_unscaled:
0.0896 (0.0945)  loss_giou_enc_unscaled: 0.1290 (0.1440)
```

cardinality_error_enc_unscaled: 3764.2500 (3605.0682) time: 7.2084 data:
0.1421 max mem: 9284
Epoch: [10] [20/87] eta: 0:07:59 lr: 0.000100 class_error: 0.00 loss:
4.1434 (4.3815) loss_ce: 0.3845 (0.4593) loss_bbox: 0.2643 (0.2725)
loss_giou: 0.1656 (0.1763) loss_ce_0: 0.5377 (0.5681) loss_bbox_0: 0.2591
(0.3008) loss_giou_0: 0.1871 (0.1932) loss_ce_1: 0.3888 (0.4720) loss_bbox_1:
0.2444 (0.2696) loss_giou_1: 0.1680 (0.1786) loss_ce_enc: 0.6680 (0.6763)
loss_bbox_enc: 0.5120 (0.5213) loss_giou_enc: 0.2693 (0.2936)
loss_ce_unscaled: 0.3845 (0.4593) class_error_unscaled: 0.0000 (0.6803)
loss_bbox_unscaled: 0.0529 (0.0545) loss_giou_unscaled: 0.0828 (0.0881)
cardinality_error_unscaled: 3891.0000 (3820.0714) loss_ce_0_unscaled: 0.5377
(0.5681) loss_bbox_0_unscaled: 0.0518 (0.0602) loss_giou_0_unscaled: 0.0935
(0.0966) cardinality_error_0_unscaled: 3873.2500 (3712.3214)
loss_ce_1_unscaled: 0.3888 (0.4720) loss_bbox_1_unscaled: 0.0489 (0.0539)
loss_giou_1_unscaled: 0.0840 (0.0893) cardinality_error_1_unscaled: 3885.7500
(3793.9643) loss_ce_enc_unscaled: 0.6680 (0.6763) loss_bbox_enc_unscaled:
0.1024 (0.1043) loss_giou_enc_unscaled: 0.1347 (0.1468)
cardinality_error_enc_unscaled: 3810.0000 (3659.8333) time: 7.0860 data:
0.0497 max mem: 9284
Epoch: [10] [30/87] eta: 0:06:44 lr: 0.000100 class_error: 0.00 loss:
4.2675 (4.2954) loss_ce: 0.3088 (0.4207) loss_bbox: 0.2772 (0.2815)
loss_giou: 0.1247 (0.1647) loss_ce_0: 0.4658 (0.5450) loss_bbox_0: 0.2994
(0.3108) loss_giou_0: 0.1401 (0.1799) loss_ce_1: 0.3683 (0.4330) loss_bbox_1:
0.2843 (0.2767) loss_giou_1: 0.1382 (0.1655) loss_ce_enc: 0.6609 (0.6847)
loss_bbox_enc: 0.5673 (0.5478) loss_giou_enc: 0.2711 (0.2852)
loss_ce_unscaled: 0.3088 (0.4207) class_error_unscaled: 0.0000 (0.4608)
loss_bbox_unscaled: 0.0554 (0.0563) loss_giou_unscaled: 0.0624 (0.0824)
cardinality_error_unscaled: 3886.7500 (3794.4194) loss_ce_0_unscaled: 0.4658
(0.5450) loss_bbox_0_unscaled: 0.0599 (0.0622) loss_giou_0_unscaled: 0.0701
(0.0899) cardinality_error_0_unscaled: 3849.0000 (3642.6532)
loss_ce_1_unscaled: 0.3683 (0.4330) loss_bbox_1_unscaled: 0.0569 (0.0553)
loss_giou_1_unscaled: 0.0691 (0.0827) cardinality_error_1_unscaled: 3881.0000
(3761.7903) loss_ce_enc_unscaled: 0.6609 (0.6847) loss_bbox_enc_unscaled:
0.1135 (0.1096) loss_giou_enc_unscaled: 0.1356 (0.1426)
cardinality_error_enc_unscaled: 3812.2500 (3588.9919) time: 7.0359 data:
0.0492 max mem: 9284
Epoch: [10] [40/87] eta: 0:05:33 lr: 0.000100 class_error: 0.00 loss:
3.7973 (4.2167) loss_ce: 0.2924 (0.3971) loss_bbox: 0.2768 (0.2855)
loss_giou: 0.1421 (0.1672) loss_ce_0: 0.4479 (0.5253) loss_bbox_0: 0.2876
(0.3090) loss_giou_0: 0.1450 (0.1775) loss_ce_1: 0.3133 (0.4120) loss_bbox_1:
0.2760 (0.2799) loss_giou_1: 0.1418 (0.1667) loss_ce_enc: 0.6422 (0.6724)
loss_bbox_enc: 0.5388 (0.5403) loss_giou_enc: 0.2621 (0.2838)
loss_ce_unscaled: 0.2924 (0.3971) class_error_unscaled: 0.0000 (0.3484)
loss_bbox_unscaled: 0.0554 (0.0571) loss_giou_unscaled: 0.0710 (0.0836)
cardinality_error_unscaled: 3878.7500 (3788.9390) loss_ce_0_unscaled: 0.4479
(0.5253) loss_bbox_0_unscaled: 0.0575 (0.0618) loss_giou_0_unscaled: 0.0725
(0.0888) cardinality_error_0_unscaled: 3804.2500 (3645.1341)
loss_ce_1_unscaled: 0.3133 (0.4120) loss_bbox_1_unscaled: 0.0552 (0.0560)

loss_giou_1_unscaled: 0.0709 (0.0833) cardinality_error_1_unscaled: 3874.7500 (3761.7683) loss_ce_enc_unscaled: 0.6422 (0.6724) loss_bbox_enc_unscaled: 0.1078 (0.1081) loss_giou_enc_unscaled: 0.1310 (0.1419) cardinality_error_enc_unscaled: 3814.7500 (3606.9573) time: 7.0325 data: 0.0492 max mem: 9284
Epoch: [10] [50/87] eta: 0:04:23 lr: 0.000100 class_error: 0.00 loss: 3.7973 (4.1470) loss_ce: 0.3054 (0.3869) loss_bbox: 0.2530 (0.2799) loss_giou: 0.1550 (0.1656) loss_ce_0: 0.4212 (0.5174) loss_bbox_0: 0.2646 (0.3049) loss_giou_0: 0.1549 (0.1761) loss_ce_1: 0.3165 (0.4027) loss_bbox_1: 0.2604 (0.2776) loss_giou_1: 0.1564 (0.1665) loss_ce_enc: 0.6014 (0.6612) loss_bbox_enc: 0.5329 (0.5270) loss_giou_enc: 0.2834 (0.2811) loss_ce_unscaled: 0.3054 (0.3869) class_error_unscaled: 0.0000 (0.3232) loss_bbox_unscaled: 0.0506 (0.0560) loss_giou_unscaled: 0.0775 (0.0828) cardinality_error_unscaled: 3870.0000 (3780.8725) loss_ce_0_unscaled: 0.4212 (0.5174) loss_bbox_0_unscaled: 0.0529 (0.0610) loss_giou_0_unscaled: 0.0774 (0.0880) cardinality_error_0_unscaled: 3803.5000 (3636.4951) loss_ce_1_unscaled: 0.3165 (0.4027) loss_bbox_1_unscaled: 0.0521 (0.0555) loss_giou_1_unscaled: 0.0782 (0.0832) cardinality_error_1_unscaled: 3857.0000 (3755.7745) loss_ce_enc_unscaled: 0.6014 (0.6612) loss_bbox_enc_unscaled: 0.1066 (0.1054) loss_giou_enc_unscaled: 0.1417 (0.1406) cardinality_error_enc_unscaled: 3814.7500 (3601.4167) time: 7.1316 data: 0.0506 max mem: 9284
Epoch: [10] [60/87] eta: 0:03:11 lr: 0.000100 class_error: 3.85 loss: 3.6989 (4.0963) loss_ce: 0.3413 (0.3875) loss_bbox: 0.2404 (0.2731) loss_giou: 0.1321 (0.1593) loss_ce_0: 0.4809 (0.5168) loss_bbox_0: 0.2594 (0.2982) loss_giou_0: 0.1398 (0.1693) loss_ce_1: 0.3446 (0.3998) loss_bbox_1: 0.2462 (0.2715) loss_giou_1: 0.1328 (0.1603) loss_ce_enc: 0.6232 (0.6584) loss_bbox_enc: 0.4891 (0.5260) loss_giou_enc: 0.2692 (0.2761) loss_ce_unscaled: 0.3413 (0.3875) class_error_unscaled: 0.0000 (0.6012) loss_bbox_unscaled: 0.0481 (0.0546) loss_giou_unscaled: 0.0660 (0.0796) cardinality_error_unscaled: 3863.2500 (3764.4754) loss_ce_0_unscaled: 0.4809 (0.5168) loss_bbox_0_unscaled: 0.0519 (0.0596) loss_giou_0_unscaled: 0.0699 (0.0847) cardinality_error_0_unscaled: 3737.5000 (3596.4098) loss_ce_1_unscaled: 0.3446 (0.3998) loss_bbox_1_unscaled: 0.0492 (0.0543) loss_giou_1_unscaled: 0.0664 (0.0802) cardinality_error_1_unscaled: 3847.7500 (3744.8156) loss_ce_enc_unscaled: 0.6232 (0.6584) loss_bbox_enc_unscaled: 0.0978 (0.1052) loss_giou_enc_unscaled: 0.1346 (0.1381) cardinality_error_enc_unscaled: 3722.5000 (3554.4508) time: 7.0909 data: 0.0501 max mem: 9284
Epoch: [10] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 0.00 loss: 3.5359 (4.0394) loss_ce: 0.3413 (0.3784) loss_bbox: 0.2322 (0.2719) loss_giou: 0.1190 (0.1589) loss_ce_0: 0.4839 (0.5114) loss_bbox_0: 0.2279 (0.2903) loss_giou_0: 0.1132 (0.1663) loss_ce_1: 0.3446 (0.3904) loss_bbox_1: 0.2251 (0.2706) loss_giou_1: 0.1207 (0.1598) loss_ce_enc: 0.6202 (0.6493) loss_bbox_enc: 0.4569 (0.5192) loss_giou_enc: 0.2415 (0.2731) loss_ce_unscaled: 0.3413 (0.3784) class_error_unscaled: 0.0000 (0.5286) loss_bbox_unscaled: 0.0464 (0.0544) loss_giou_unscaled: 0.0595 (0.0794) cardinality_error_unscaled: 3869.0000 (3763.2782) loss_ce_0_unscaled: 0.4839

(0.5114) loss_bbox_0_unscaled: 0.0456 (0.0581) loss_giou_0_unscaled: 0.0566
(0.0832) cardinality_error_0_unscaled: 3705.2500 (3597.1338)
loss_ce_1_unscaled: 0.3446 (0.3904) loss_bbox_1_unscaled: 0.0450 (0.0541)
loss_giou_1_unscaled: 0.0603 (0.0799) cardinality_error_1_unscaled: 3858.0000
(3745.4472) loss_ce_enc_unscaled: 0.6202 (0.6493) loss_bbox_enc_unscaled:
0.0914 (0.1038) loss_giou_enc_unscaled: 0.1208 (0.1365)
cardinality_error_enc_unscaled: 3830.2500 (3561.2077) time: 7.0369 data:
0.0494 max mem: 9284
Epoch: [10] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 5.43 loss:
3.9340 (4.0888) loss_ce: 0.3496 (0.3822) loss_bbox: 0.2948 (0.2762)
loss_giou: 0.1523 (0.1619) loss_ce_0: 0.4764 (0.5142) loss_bbox_0: 0.2983
(0.2956) loss_giou_0: 0.1560 (0.1704) loss_ce_1: 0.3695 (0.3933) loss_bbox_1:
0.3008 (0.2773) loss_giou_1: 0.1561 (0.1638) loss_ce_enc: 0.5847 (0.6524)
loss_bbox_enc: 0.4642 (0.5258) loss_giou_enc: 0.2521 (0.2756)
loss_ce_unscaled: 0.3496 (0.3822) class_error_unscaled: 0.0000 (0.5304)
loss_bbox_unscaled: 0.0590 (0.0552) loss_giou_unscaled: 0.0762 (0.0810)
cardinality_error_unscaled: 3867.2500 (3709.1852) loss_ce_0_unscaled: 0.4764
(0.5142) loss_bbox_0_unscaled: 0.0597 (0.0591) loss_giou_0_unscaled: 0.0780
(0.0852) cardinality_error_0_unscaled: 3633.2500 (3534.7191)
loss_ce_1_unscaled: 0.3695 (0.3933) loss_bbox_1_unscaled: 0.0602 (0.0555)
loss_giou_1_unscaled: 0.0780 (0.0819) cardinality_error_1_unscaled: 3813.7500
(3705.2531) loss_ce_enc_unscaled: 0.5847 (0.6524) loss_bbox_enc_unscaled:
0.0928 (0.1052) loss_giou_enc_unscaled: 0.1260 (0.1378)
cardinality_error_enc_unscaled: 3802.2500 (3495.7469) time: 7.1307 data:
0.0494 max mem: 9284
Epoch: [10] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss:
3.8774 (4.0393) loss_ce: 0.2892 (0.3757) loss_bbox: 0.2874 (0.2731)
loss_giou: 0.1464 (0.1601) loss_ce_0: 0.4313 (0.5079) loss_bbox_0: 0.2983
(0.2925) loss_giou_0: 0.1454 (0.1685) loss_ce_1: 0.3014 (0.3870) loss_bbox_1:
0.2901 (0.2744) loss_giou_1: 0.1418 (0.1621) loss_ce_enc: 0.5847 (0.6497)
loss_bbox_enc: 0.4596 (0.5165) loss_giou_enc: 0.2381 (0.2720)
loss_ce_unscaled: 0.2892 (0.3757) class_error_unscaled: 0.0000 (0.4938)
loss_bbox_unscaled: 0.0575 (0.0546) loss_giou_unscaled: 0.0732 (0.0800)
cardinality_error_unscaled: 3877.0000 (3720.9253) loss_ce_0_unscaled: 0.4313
(0.5079) loss_bbox_0_unscaled: 0.0597 (0.0585) loss_giou_0_unscaled: 0.0727
(0.0842) cardinality_error_0_unscaled: 3765.5000 (3555.4080)
loss_ce_1_unscaled: 0.3014 (0.3870) loss_bbox_1_unscaled: 0.0580 (0.0549)
loss_giou_1_unscaled: 0.0709 (0.0810) cardinality_error_1_unscaled: 3868.0000
(3717.5833) loss_ce_enc_unscaled: 0.5847 (0.6497) loss_bbox_enc_unscaled:
0.0919 (0.1033) loss_giou_enc_unscaled: 0.1191 (0.1360)
cardinality_error_enc_unscaled: 3750.7500 (3516.3305) time: 7.1253 data:
0.0494 max mem: 9284
Epoch: [10] Total time: 0:10:17 (7.0956 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 3.8774 (4.0393) loss_ce:
0.2892 (0.3757) loss_bbox: 0.2874 (0.2731) loss_giou: 0.1464 (0.1601)
loss_ce_0: 0.4313 (0.5079) loss_bbox_0: 0.2983 (0.2925) loss_giou_0: 0.1454
(0.1685) loss_ce_1: 0.3014 (0.3870) loss_bbox_1: 0.2901 (0.2744) loss_giou_1:
0.1418 (0.1621) loss_ce_enc: 0.5847 (0.6497) loss_bbox_enc: 0.4596 (0.5165)

loss_giou_enc: 0.2381 (0.2720) loss_ce_unscaled: 0.2892 (0.3757)
class_error_unscaled: 0.0000 (0.4938) loss_bbox_unscaled: 0.0575 (0.0546)
loss_giou_unscaled: 0.0732 (0.0800) cardinality_error_unscaled: 3877.0000
(3720.9253) loss_ce_0_unscaled: 0.4313 (0.5079) loss_bbox_0_unscaled: 0.0597
(0.0585) loss_giou_0_unscaled: 0.0727 (0.0842) cardinality_error_0_unscaled:
3765.5000 (3555.4080) loss_ce_1_unscaled: 0.3014 (0.3870)
loss_bbox_1_unscaled: 0.0580 (0.0549) loss_giou_1_unscaled: 0.0709 (0.0810)
cardinality_error_1_unscaled: 3868.0000 (3717.5833) loss_ce_enc_unscaled:
0.5847 (0.6497) loss_bbox_enc_unscaled: 0.0919 (0.1033)
loss_giou_enc_unscaled: 0.1191 (0.1360) cardinality_error_enc_unscaled:
3750.7500 (3516.3305)
Test: [0/38] eta: 0:00:48 class_error: 0.00 loss: 4.4251 (4.4251) loss_ce:
0.3418 (0.3418) loss_bbox: 0.2593 (0.2593) loss_giou: 0.1542 (0.1542)
loss_ce_0: 0.4023 (0.4023) loss_bbox_0: 0.2669 (0.2669) loss_giou_0: 0.1474
(0.1474) loss_ce_1: 0.3125 (0.3125) loss_bbox_1: 0.2699 (0.2699) loss_giou_1:
0.1520 (0.1520) loss_ce_enc: 0.6953 (0.6953) loss_bbox_enc: 0.9958 (0.9958)
loss_giou_enc: 0.4275 (0.4275) loss_ce_unscaled: 0.3418 (0.3418)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0519 (0.0519)
loss_giou_unscaled: 0.0771 (0.0771) cardinality_error_unscaled: 247.7500
(247.7500) loss_ce_0_unscaled: 0.4023 (0.4023) loss_bbox_0_unscaled: 0.0534
(0.0534) loss_giou_0_unscaled: 0.0737 (0.0737) cardinality_error_0_unscaled:
198.0000 (198.0000) loss_ce_1_unscaled: 0.3125 (0.3125) loss_bbox_1_unscaled:
0.0540 (0.0540) loss_giou_1_unscaled: 0.0760 (0.0760)
cardinality_error_1_unscaled: 240.0000 (240.0000) loss_ce_enc_unscaled: 0.6953
(0.6953) loss_bbox_enc_unscaled: 0.1992 (0.1992) loss_giou_enc_unscaled:
0.2137 (0.2137) cardinality_error_enc_unscaled: 222.5000 (222.5000) time:
1.2856 data: 0.3483 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 14.29 loss: 4.8895 (5.0173)
loss_ce: 0.6914 (0.6018) loss_bbox: 0.2763 (0.3209) loss_giou: 0.1831 (0.2035)
loss_ce_0: 0.6641 (0.6213) loss_bbox_0: 0.2826 (0.3313) loss_giou_0: 0.1626
(0.2066) loss_ce_1: 0.6641 (0.5815) loss_bbox_1: 0.2733 (0.3059) loss_giou_1:
0.1781 (0.1957) loss_ce_enc: 0.7344 (0.7518) loss_bbox_enc: 0.5476 (0.5687)
loss_giou_enc: 0.3168 (0.3284) loss_ce_unscaled: 0.6914 (0.6018)
class_error_unscaled: 0.0000 (5.3896) loss_bbox_unscaled: 0.0553 (0.0642)
loss_giou_unscaled: 0.0915 (0.1017) cardinality_error_unscaled: 258.7500
(267.0227) loss_ce_0_unscaled: 0.6641 (0.6213) loss_bbox_0_unscaled: 0.0565
(0.0663) loss_giou_0_unscaled: 0.0813 (0.1033) cardinality_error_0_unscaled:
234.2500 (251.3636) loss_ce_1_unscaled: 0.6641 (0.5815) loss_bbox_1_unscaled:
0.0547 (0.0612) loss_giou_1_unscaled: 0.0891 (0.0978)
cardinality_error_1_unscaled: 271.0000 (269.3864) loss_ce_enc_unscaled: 0.7344
(0.7518) loss_bbox_enc_unscaled: 0.1095 (0.1137) loss_giou_enc_unscaled:
0.1584 (0.1642) cardinality_error_enc_unscaled: 241.5000 (253.5682) time:
0.3822 data: 0.0477 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.8318 (4.8582) loss_ce:
0.5391 (0.5561) loss_bbox: 0.2679 (0.3302) loss_giou: 0.1591 (0.1954)
loss_ce_0: 0.6133 (0.6010) loss_bbox_0: 0.2826 (0.3514) loss_giou_0: 0.1626
(0.2074) loss_ce_1: 0.5898 (0.5455) loss_bbox_1: 0.2696 (0.3207) loss_giou_1:
0.1752 (0.1925) loss_ce_enc: 0.7344 (0.7304) loss_bbox_enc: 0.5051 (0.5268)

loss_giou_enc: 0.2814 (0.3007) loss_ce_unscaled: 0.5391 (0.5561)
class_error_unscaled: 0.0000 (5.6803) loss_bbox_unscaled: 0.0536 (0.0660)
loss_giou_unscaled: 0.0795 (0.0977) cardinality_error_unscaled: 258.7500
(259.8690) loss_ce_0_unscaled: 0.6133 (0.6010) loss_bbox_0_unscaled: 0.0565
(0.0703) loss_giou_0_unscaled: 0.0813 (0.1037) cardinality_error_0_unscaled:
234.2500 (244.8929) loss_ce_1_unscaled: 0.5898 (0.5455) loss_bbox_1_unscaled:
0.0539 (0.0641) loss_giou_1_unscaled: 0.0876 (0.0963)
cardinality_error_1_unscaled: 271.0000 (264.4643) loss_ce_enc_unscaled: 0.7344
(0.7304) loss_bbox_enc_unscaled: 0.1010 (0.1054) loss_giou_enc_unscaled:
0.1407 (0.1504) cardinality_error_enc_unscaled: 241.0000 (240.9881) time:
0.2921 data: 0.0186 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.9915 (4.6507) loss_ce:
0.3867 (0.5265) loss_bbox: 0.2071 (0.2947) loss_giou: 0.1550 (0.1863)
loss_ce_0: 0.5000 (0.5948) loss_bbox_0: 0.2347 (0.3221) loss_giou_0: 0.1655
(0.2006) loss_ce_1: 0.3887 (0.5281) loss_bbox_1: 0.2055 (0.2926) loss_giou_1:
0.1600 (0.1873) loss_ce_enc: 0.7188 (0.7183) loss_bbox_enc: 0.4677 (0.5033)
loss_giou_enc: 0.2602 (0.2961) loss_ce_unscaled: 0.3867 (0.5265)
class_error_unscaled: 0.0000 (4.7412) loss_bbox_unscaled: 0.0414 (0.0589)
loss_giou_unscaled: 0.0775 (0.0931) cardinality_error_unscaled: 291.7500
(267.6532) loss_ce_0_unscaled: 0.5000 (0.5948) loss_bbox_0_unscaled: 0.0469
(0.0644) loss_giou_0_unscaled: 0.0827 (0.1003) cardinality_error_0_unscaled:
279.7500 (254.0242) loss_ce_1_unscaled: 0.3887 (0.5281) loss_bbox_1_unscaled:
0.0411 (0.0585) loss_giou_1_unscaled: 0.0800 (0.0936)
cardinality_error_1_unscaled: 290.5000 (270.1048) loss_ce_enc_unscaled: 0.7188
(0.7183) loss_bbox_enc_unscaled: 0.0935 (0.1007) loss_giou_enc_unscaled:
0.1301 (0.1481) cardinality_error_enc_unscaled: 270.7500 (252.3226) time:
0.2858 data: 0.0191 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.2074 (4.7683) loss_ce:
0.4238 (0.5368) loss_bbox: 0.2360 (0.3050) loss_giou: 0.1746 (0.1960)
loss_ce_0: 0.5859 (0.6198) loss_bbox_0: 0.2480 (0.3230) loss_giou_0: 0.1795
(0.2056) loss_ce_1: 0.4355 (0.5392) loss_bbox_1: 0.2527 (0.3010) loss_giou_1:
0.1774 (0.1964) loss_ce_enc: 0.6680 (0.7247) loss_bbox_enc: 0.4839 (0.5134)
loss_giou_enc: 0.3012 (0.3075) loss_ce_unscaled: 0.4238 (0.5368)
class_error_unscaled: 0.0000 (4.2438) loss_bbox_unscaled: 0.0472 (0.0610)
loss_giou_unscaled: 0.0873 (0.0980) cardinality_error_unscaled: 292.0000
(272.1711) loss_ce_0_unscaled: 0.5859 (0.6198) loss_bbox_0_unscaled: 0.0496
(0.0646) loss_giou_0_unscaled: 0.0897 (0.1028) cardinality_error_0_unscaled:
281.0000 (259.5526) loss_ce_1_unscaled: 0.4355 (0.5392) loss_bbox_1_unscaled:
0.0505 (0.0602) loss_giou_1_unscaled: 0.0887 (0.0982)
cardinality_error_1_unscaled: 293.5000 (274.4211) loss_ce_enc_unscaled: 0.6680
(0.7247) loss_bbox_enc_unscaled: 0.0968 (0.1027) loss_giou_enc_unscaled:
0.1506 (0.1538) cardinality_error_enc_unscaled: 289.7500 (258.6579) time:
0.2712 data: 0.0174 max mem: 9284
Test: Total time: 0:00:11 (0.3109 s / it)
Averaged stats: class_error: 0.00 loss: 4.2074 (4.7683) loss_ce: 0.4238
(0.5368) loss_bbox: 0.2360 (0.3050) loss_giou: 0.1746 (0.1960) loss_ce_0:
0.5859 (0.6198) loss_bbox_0: 0.2480 (0.3230) loss_giou_0: 0.1795 (0.2056)
loss_ce_1: 0.4355 (0.5392) loss_bbox_1: 0.2527 (0.3010) loss_giou_1: 0.1774

97

(0.1964) loss_ce_enc: 0.6680 (0.7247) loss_bbox_enc: 0.4839 (0.5134)
loss_giou_enc: 0.3012 (0.3075) loss_ce_unscaled: 0.4238 (0.5368)
class_error_unscaled: 0.0000 (4.2438) loss_bbox_unscaled: 0.0472 (0.0610)
loss_giou_unscaled: 0.0873 (0.0980) cardinality_error_unscaled: 292.0000
(272.1711) loss_ce_0_unscaled: 0.5859 (0.6198) loss_bbox_0_unscaled: 0.0496
(0.0646) loss_giou_0_unscaled: 0.0897 (0.1028) cardinality_error_0_unscaled:
281.0000 (259.5526) loss_ce_1_unscaled: 0.4355 (0.5392) loss_bbox_1_unscaled:
0.0505 (0.0602) loss_giou_1_unscaled: 0.0887 (0.0982)
cardinality_error_1_unscaled: 293.5000 (274.4211) loss_ce_enc_unscaled: 0.6680
(0.7247) loss_bbox_enc_unscaled: 0.0968 (0.1027) loss_giou_enc_unscaled:
0.1506 (0.1538) cardinality_error_enc_unscaled: 289.7500 (258.6579)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.770
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.933
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.859
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.321
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.779
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.635
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.854
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.888
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.570
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.894
Test: [0/38] eta: 0:00:23 class_error: 0.00 loss: 4.2745 (4.2745) loss_ce:
0.3105 (0.3105) loss_bbox: 0.2531 (0.2531) loss_giou: 0.1554 (0.1554)
loss_ce_0: 0.4355 (0.4355) loss_bbox_0: 0.2844 (0.2844) loss_giou_0: 0.1628
(0.1628) loss_ce_1: 0.2969 (0.2969) loss_bbox_1: 0.2447 (0.2447) loss_giou_1:
0.1502 (0.1502) loss_ce_enc: 0.7266 (0.7266) loss_bbox_enc: 0.8520 (0.8520)
loss_giou_enc: 0.4024 (0.4024) loss_ce_unscaled: 0.3105 (0.3105)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0506 (0.0506)
loss_giou_unscaled: 0.0777 (0.0777) cardinality_error_unscaled: 260.5000
(260.5000) loss_ce_0_unscaled: 0.4355 (0.4355) loss_bbox_0_unscaled: 0.0569
(0.0569) loss_giou_0_unscaled: 0.0814 (0.0814) cardinality_error_0_unscaled:
191.7500 (191.7500) loss_ce_1_unscaled: 0.2969 (0.2969) loss_bbox_1_unscaled:
0.0489 (0.0489) loss_giou_1_unscaled: 0.0751 (0.0751)
cardinality_error_1_unscaled: 240.5000 (240.5000) loss_ce_enc_unscaled: 0.7266
(0.7266) loss_bbox_enc_unscaled: 0.1704 (0.1704) loss_giou_enc_unscaled:
0.2012 (0.2012) cardinality_error_enc_unscaled: 220.2500 (220.2500) time:
0.6097 data: 0.3084 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 14.29 loss: 4.7644 (4.7605)
loss_ce: 0.5586 (0.5117) loss_bbox: 0.2531 (0.3084) loss_giou: 0.1890 (0.2049)
loss_ce_0: 0.5859 (0.5847) loss_bbox_0: 0.2894 (0.3343) loss_giou_0: 0.1918
(0.2121) loss_ce_1: 0.5195 (0.5268) loss_bbox_1: 0.2447 (0.2960) loss_giou_1:
0.1891 (0.2007) loss_ce_enc: 0.7852 (0.7848) loss_bbox_enc: 0.4810 (0.4996)
loss_giou_enc: 0.2856 (0.2965) loss_ce_unscaled: 0.5586 (0.5117)

class_error_unscaled: 0.0000 (4.4805) loss_bbox_unscaled: 0.0506 (0.0617)
loss_giou_unscaled: 0.0945 (0.1024) cardinality_error_unscaled: 280.7500
(277.1591) loss_ce_0_unscaled: 0.5859 (0.5847) loss_bbox_0_unscaled: 0.0579
(0.0669) loss_giou_0_unscaled: 0.0959 (0.1060) cardinality_error_0_unscaled:
235.0000 (251.6591) loss_ce_1_unscaled: 0.5195 (0.5268) loss_bbox_1_unscaled:
0.0489 (0.0592) loss_giou_1_unscaled: 0.0945 (0.1004)
cardinality_error_1_unscaled: 284.2500 (272.1364) loss_ce_enc_unscaled: 0.7852
(0.7848) loss_bbox_enc_unscaled: 0.0962 (0.0999) loss_giou_enc_unscaled:
0.1428 (0.1482) cardinality_error_enc_unscaled: 234.0000 (252.0909) time:
0.3806 data: 0.0439 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.3392 (4.5271) loss_ce:
0.3984 (0.4735) loss_bbox: 0.2514 (0.3199) loss_giou: 0.1634 (0.1934)
loss_ce_0: 0.5273 (0.5545) loss_bbox_0: 0.2894 (0.3349) loss_giou_0: 0.1849
(0.2004) loss_ce_1: 0.4004 (0.4716) loss_bbox_1: 0.2529 (0.3133) loss_giou_1:
0.1482 (0.1927) loss_ce_enc: 0.7539 (0.7459) loss_bbox_enc: 0.3853 (0.4505)
loss_giou_enc: 0.2283 (0.2764) loss_ce_unscaled: 0.3984 (0.4735)
class_error_unscaled: 0.0000 (4.4104) loss_bbox_unscaled: 0.0503 (0.0640)
loss_giou_unscaled: 0.0817 (0.0967) cardinality_error_unscaled: 280.7500
(272.2857) loss_ce_0_unscaled: 0.5273 (0.5545) loss_bbox_0_unscaled: 0.0579
(0.0670) loss_giou_0_unscaled: 0.0924 (0.1002) cardinality_error_0_unscaled:
235.0000 (244.5952) loss_ce_1_unscaled: 0.4004 (0.4716) loss_bbox_1_unscaled:
0.0506 (0.0627) loss_giou_1_unscaled: 0.0741 (0.0964)
cardinality_error_1_unscaled: 284.2500 (267.3690) loss_ce_enc_unscaled: 0.7539
(0.7459) loss_bbox_enc_unscaled: 0.0771 (0.0901) loss_giou_enc_unscaled:
0.1142 (0.1382) cardinality_error_enc_unscaled: 230.2500 (239.4167) time:
0.3324 data: 0.0191 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.8337 (4.3303) loss_ce:
0.3887 (0.4392) loss_bbox: 0.2472 (0.2991) loss_giou: 0.1634 (0.1884)
loss_ce_0: 0.5156 (0.5571) loss_bbox_0: 0.2204 (0.3029) loss_giou_0: 0.1525
(0.1911) loss_ce_1: 0.4004 (0.4552) loss_bbox_1: 0.2240 (0.2867) loss_giou_1:
0.1375 (0.1861) loss_ce_enc: 0.6758 (0.7238) loss_bbox_enc: 0.3782 (0.4314)
loss_giou_enc: 0.2283 (0.2692) loss_ce_unscaled: 0.3887 (0.4392)
class_error_unscaled: 0.0000 (2.9877) loss_bbox_unscaled: 0.0494 (0.0598)
loss_giou_unscaled: 0.0817 (0.0942) cardinality_error_unscaled: 295.7500
(276.9194) loss_ce_0_unscaled: 0.5156 (0.5571) loss_bbox_0_unscaled: 0.0441
(0.0606) loss_giou_0_unscaled: 0.0763 (0.0956) cardinality_error_0_unscaled:
283.5000 (254.9274) loss_ce_1_unscaled: 0.4004 (0.4552) loss_bbox_1_unscaled:
0.0448 (0.0573) loss_giou_1_unscaled: 0.0688 (0.0930)
cardinality_error_1_unscaled: 292.0000 (272.0000) loss_ce_enc_unscaled: 0.6758
(0.7238) loss_bbox_enc_unscaled: 0.0756 (0.0863) loss_giou_enc_unscaled:
0.1142 (0.1346) cardinality_error_enc_unscaled: 268.5000 (251.6371) time:
0.2973 data: 0.0191 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 3.9598 (4.3577) loss_ce:
0.3887 (0.4326) loss_bbox: 0.2482 (0.2989) loss_giou: 0.1797 (0.1923)
loss_ce_0: 0.5156 (0.5596) loss_bbox_0: 0.2536 (0.3134) loss_giou_0: 0.1914
(0.1990) loss_ce_1: 0.4004 (0.4534) loss_bbox_1: 0.2516 (0.2895) loss_giou_1:
0.1775 (0.1897) loss_ce_enc: 0.6406 (0.7107) loss_bbox_enc: 0.4042 (0.4417)
loss_giou_enc: 0.2819 (0.2769) loss_ce_unscaled: 0.3887 (0.4326)

class_error_unscaled: 0.0000 (2.4373) loss_bbox_unscaled: 0.0496 (0.0598)
loss_giou_unscaled: 0.0899 (0.0962) cardinality_error_unscaled: 296.5000
(280.4803) loss_ce_0_unscaled: 0.5156 (0.5596) loss_bbox_0_unscaled: 0.0507
(0.0627) loss_giou_0_unscaled: 0.0957 (0.0995) cardinality_error_0_unscaled:
287.2500 (261.2105) loss_ce_1_unscaled: 0.4004 (0.4534) loss_bbox_1_unscaled:
0.0503 (0.0579) loss_giou_1_unscaled: 0.0887 (0.0949)
cardinality_error_1_unscaled: 294.7500 (276.3158) loss_ce_enc_unscaled: 0.6406
(0.7107) loss_bbox_enc_unscaled: 0.0808 (0.0883) loss_giou_enc_unscaled:
0.1410 (0.1384) cardinality_error_enc_unscaled: 292.5000 (258.6250) time:
0.2818 data: 0.0172 max mem: 9284
Test: Total time: 0:00:12 (0.3191 s / it)
Averaged stats: class_error: 0.00 loss: 3.9598 (4.3577) loss_ce: 0.3887
(0.4326) loss_bbox: 0.2482 (0.2989) loss_giou: 0.1797 (0.1923) loss_ce_0:
0.5156 (0.5596) loss_bbox_0: 0.2536 (0.3134) loss_giou_0: 0.1914 (0.1990)
loss_ce_1: 0.4004 (0.4534) loss_bbox_1: 0.2516 (0.2895) loss_giou_1: 0.1775
(0.1897) loss_ce_enc: 0.6406 (0.7107) loss_bbox_enc: 0.4042 (0.4417)
loss_giou_enc: 0.2819 (0.2769) loss_ce_unscaled: 0.3887 (0.4326)
class_error_unscaled: 0.0000 (2.4373) loss_bbox_unscaled: 0.0496 (0.0598)
loss_giou_unscaled: 0.0899 (0.0962) cardinality_error_unscaled: 296.5000
(280.4803) loss_ce_0_unscaled: 0.5156 (0.5596) loss_bbox_0_unscaled: 0.0507
(0.0627) loss_giou_0_unscaled: 0.0957 (0.0995) cardinality_error_0_unscaled:
287.2500 (261.2105) loss_ce_1_unscaled: 0.4004 (0.4534) loss_bbox_1_unscaled:
0.0503 (0.0579) loss_giou_1_unscaled: 0.0887 (0.0949)
cardinality_error_1_unscaled: 294.7500 (276.3158) loss_ce_enc_unscaled: 0.6406
(0.7107) loss_bbox_enc_unscaled: 0.0808 (0.0883) loss_giou_enc_unscaled:
0.1410 (0.1384) cardinality_error_enc_unscaled: 292.5000 (258.6250)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.811
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.961
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.884
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.334
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.822
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.643
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.868
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.895
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.632
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.900
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [11] [0/87] eta: 0:12:25 lr: 0.000100 class_error: 16.67 loss:
5.0480 (5.0480) loss_ce: 0.7501 (0.7501) loss_bbox: 0.3206 (0.3206)
loss_giou: 0.1539 (0.1539) loss_ce_0: 0.7669 (0.7669) loss_bbox_0: 0.3075
(0.3075) loss_giou_0: 0.1559 (0.1559) loss_ce_1: 0.8150 (0.8150) loss_bbox_1:

0.3043 (0.3043) loss_giou_1: 0.1582 (0.1582) loss_ce_enc: 0.7216 (0.7216)
loss_bbox_enc: 0.3826 (0.3826) loss_giou_enc: 0.2114 (0.2114)
loss_ce_unscaled: 0.7501 (0.7501) class_error_unscaled: 16.6667 (16.6667)
loss_bbox_unscaled: 0.0641 (0.0641) loss_giou_unscaled: 0.0769 (0.0769)
cardinality_error_unscaled: 3884.0000 (3884.0000) loss_ce_0_unscaled: 0.7669
(0.7669) loss_bbox_0_unscaled: 0.0615 (0.0615) loss_giou_0_unscaled: 0.0780
(0.0780) cardinality_error_0_unscaled: 3751.5000 (3751.5000)
loss_ce_1_unscaled: 0.8150 (0.8150) loss_bbox_1_unscaled: 0.0609 (0.0609)
loss_giou_1_unscaled: 0.0791 (0.0791) cardinality_error_1_unscaled: 3870.2500
(3870.2500) loss_ce_enc_unscaled: 0.7216 (0.7216) loss_bbox_enc_unscaled:
0.0765 (0.0765) loss_giou_enc_unscaled: 0.1057 (0.1057)
cardinality_error_enc_unscaled: 3822.5000 (3822.5000) time: 8.5647 data:
1.2591 max mem: 9284
Epoch: [11] [10/87] eta: 0:09:16 lr: 0.000100 class_error: 0.00 loss:
4.5889 (4.4646) loss_ce: 0.4240 (0.4400) loss_bbox: 0.3206 (0.3364)
loss_giou: 0.1773 (0.1845) loss_ce_0: 0.5359 (0.5445) loss_bbox_0: 0.3172
(0.3423) loss_giou_0: 0.1841 (0.1891) loss_ce_1: 0.4406 (0.4598) loss_bbox_1:
0.3172 (0.3357) loss_giou_1: 0.1753 (0.1849) loss_ce_enc: 0.6106 (0.6612)
loss_bbox_enc: 0.5247 (0.5116) loss_giou_enc: 0.2623 (0.2747)
loss_ce_unscaled: 0.4240 (0.4400) class_error_unscaled: 0.0000 (1.5152)
loss_bbox_unscaled: 0.0641 (0.0673) loss_giou_unscaled: 0.0886 (0.0922)
cardinality_error_unscaled: 3846.7500 (3757.8636) loss_ce_0_unscaled: 0.5359
(0.5445) loss_bbox_0_unscaled: 0.0634 (0.0685) loss_giou_0_unscaled: 0.0921
(0.0946) cardinality_error_0_unscaled: 3751.5000 (3612.4318)
loss_ce_1_unscaled: 0.4406 (0.4598) loss_bbox_1_unscaled: 0.0634 (0.0671)
loss_giou_1_unscaled: 0.0877 (0.0924) cardinality_error_1_unscaled: 3830.2500
(3765.8409) loss_ce_enc_unscaled: 0.6106 (0.6612) loss_bbox_enc_unscaled:
0.1049 (0.1023) loss_giou_enc_unscaled: 0.1311 (0.1374)
cardinality_error_enc_unscaled: 3802.5000 (3575.4318) time: 7.2257 data:
0.1550 max mem: 9284
Epoch: [11] [20/87] eta: 0:07:56 lr: 0.000100 class_error: 1.54 loss:
3.9817 (4.1174) loss_ce: 0.3602 (0.3985) loss_bbox: 0.2423 (0.2802)
loss_giou: 0.1380 (0.1591) loss_ce_0: 0.5189 (0.5494) loss_bbox_0: 0.2651
(0.2934) loss_giou_0: 0.1375 (0.1665) loss_ce_1: 0.4095 (0.4231) loss_bbox_1:
0.2698 (0.2879) loss_giou_1: 0.1467 (0.1625) loss_ce_enc: 0.5820 (0.6549)
loss_bbox_enc: 0.5132 (0.4840) loss_giou_enc: 0.2602 (0.2577)
loss_ce_unscaled: 0.3602 (0.3985) class_error_unscaled: 0.0000 (0.8669)
loss_bbox_unscaled: 0.0485 (0.0560) loss_giou_unscaled: 0.0690 (0.0796)
cardinality_error_unscaled: 3875.2500 (3764.5357) loss_ce_0_unscaled: 0.5189
(0.5494) loss_bbox_0_unscaled: 0.0530 (0.0587) loss_giou_0_unscaled: 0.0688
(0.0833) cardinality_error_0_unscaled: 3753.2500 (3612.8333)
loss_ce_1_unscaled: 0.4095 (0.4231) loss_bbox_1_unscaled: 0.0540 (0.0576)
loss_giou_1_unscaled: 0.0733 (0.0813) cardinality_error_1_unscaled: 3871.7500
(3785.3929) loss_ce_enc_unscaled: 0.5820 (0.6549) loss_bbox_enc_unscaled:
0.1026 (0.0968) loss_giou_enc_unscaled: 0.1301 (0.1289)
cardinality_error_enc_unscaled: 3810.2500 (3601.6190) time: 7.0353 data:
0.0468 max mem: 9284
Epoch: [11] [30/87] eta: 0:06:43 lr: 0.000100 class_error: 0.00 loss:

101

3.9817 (4.2125) loss_ce: 0.3568 (0.4102) loss_bbox: 0.2280 (0.2753)
loss_giou: 0.1202 (0.1558) loss_ce_0: 0.5640 (0.5684) loss_bbox_0: 0.2643
(0.2905) loss_giou_0: 0.1333 (0.1636) loss_ce_1: 0.4051 (0.4384) loss_bbox_1:
0.2467 (0.2805) loss_giou_1: 0.1244 (0.1593) loss_ce_enc: 0.6684 (0.6937)
loss_bbox_enc: 0.5231 (0.5090) loss_giou_enc: 0.2607 (0.2679)
loss_ce_unscaled: 0.3568 (0.4102) class_error_unscaled: 0.0000 (1.6901)
loss_bbox_unscaled: 0.0456 (0.0551) loss_giou_unscaled: 0.0601 (0.0779)
cardinality_error_unscaled: 3877.5000 (3747.7177) loss_ce_0_unscaled: 0.5640
(0.5684) loss_bbox_0_unscaled: 0.0529 (0.0581) loss_giou_0_unscaled: 0.0667
(0.0818) cardinality_error_0_unscaled: 3732.0000 (3577.4032)
loss_ce_1_unscaled: 0.4051 (0.4384) loss_bbox_1_unscaled: 0.0493 (0.0561)
loss_giou_1_unscaled: 0.0622 (0.0796) cardinality_error_1_unscaled: 3871.7500
(3764.6613) loss_ce_enc_unscaled: 0.6684 (0.6937) loss_bbox_enc_unscaled:
0.1046 (0.1018) loss_giou_enc_unscaled: 0.1304 (0.1340)
cardinality_error_enc_unscaled: 3850.2500 (3589.2016) time: 6.9883 data:
0.0490 max mem: 9284
Epoch: [11] [40/87] eta: 0:05:31 lr: 0.000100 class_error: 0.00 loss:
4.3358 (4.2070) loss_ce: 0.3568 (0.3997) loss_bbox: 0.2892 (0.2874)
loss_giou: 0.1325 (0.1599) loss_ce_0: 0.5241 (0.5564) loss_bbox_0: 0.2980
(0.2985) loss_giou_0: 0.1619 (0.1659) loss_ce_1: 0.3925 (0.4252) loss_bbox_1:
0.2839 (0.2907) loss_giou_1: 0.1503 (0.1629) loss_ce_enc: 0.6578 (0.6834)
loss_bbox_enc: 0.5471 (0.5106) loss_giou_enc: 0.2614 (0.2665)
loss_ce_unscaled: 0.3568 (0.3997) class_error_unscaled: 0.0000 (1.2987)
loss_bbox_unscaled: 0.0578 (0.0575) loss_giou_unscaled: 0.0663 (0.0799)
cardinality_error_unscaled: 3868.5000 (3729.5488) loss_ce_0_unscaled: 0.5241
(0.5564) loss_bbox_0_unscaled: 0.0596 (0.0597) loss_giou_0_unscaled: 0.0809
(0.0829) cardinality_error_0_unscaled: 3650.5000 (3539.9634)
loss_ce_1_unscaled: 0.3925 (0.4252) loss_bbox_1_unscaled: 0.0568 (0.0581)
loss_giou_1_unscaled: 0.0752 (0.0814) cardinality_error_1_unscaled: 3844.7500
(3745.2256) loss_ce_enc_unscaled: 0.6578 (0.6834) loss_bbox_enc_unscaled:
0.1094 (0.1021) loss_giou_enc_unscaled: 0.1307 (0.1333)
cardinality_error_enc_unscaled: 3791.5000 (3557.5915) time: 7.0034 data:
0.0507 max mem: 9284
Epoch: [11] [50/87] eta: 0:04:21 lr: 0.000100 class_error: 0.00 loss:
4.0251 (4.1752) loss_ce: 0.3507 (0.3981) loss_bbox: 0.2757 (0.2842)
loss_giou: 0.1491 (0.1614) loss_ce_0: 0.5046 (0.5498) loss_bbox_0: 0.2892
(0.2946) loss_giou_0: 0.1635 (0.1663) loss_ce_1: 0.3726 (0.4190) loss_bbox_1:
0.2763 (0.2877) loss_giou_1: 0.1636 (0.1633) loss_ce_enc: 0.6652 (0.6798)
loss_bbox_enc: 0.4331 (0.5039) loss_giou_enc: 0.2654 (0.2670)
loss_ce_unscaled: 0.3507 (0.3981) class_error_unscaled: 0.0000 (1.4840)
loss_bbox_unscaled: 0.0551 (0.0568) loss_giou_unscaled: 0.0746 (0.0807)
cardinality_error_unscaled: 3851.2500 (3740.2010) loss_ce_0_unscaled: 0.5046
(0.5498) loss_bbox_0_unscaled: 0.0578 (0.0589) loss_giou_0_unscaled: 0.0817
(0.0831) cardinality_error_0_unscaled: 3368.0000 (3510.4902)
loss_ce_1_unscaled: 0.3726 (0.4190) loss_bbox_1_unscaled: 0.0553 (0.0575)
loss_giou_1_unscaled: 0.0818 (0.0817) cardinality_error_1_unscaled: 3823.5000
(3746.4853) loss_ce_enc_unscaled: 0.6652 (0.6798) loss_bbox_enc_unscaled:
0.0866 (0.1008) loss_giou_enc_unscaled: 0.1327 (0.1335)

cardinality_error_enc_unscaled: 3726.5000 (3538.8627) time: 7.0412 data:
0.0506 max mem: 9284
Epoch: [11] [60/87] eta: 0:03:09 lr: 0.000100 class_error: -0.00 loss:
3.8345 (4.1594) loss_ce: 0.3496 (0.3936) loss_bbox: 0.2553 (0.2824)
loss_giou: 0.1468 (0.1590) loss_ce_0: 0.4963 (0.5456) loss_bbox_0: 0.2892
(0.2967) loss_giou_0: 0.1484 (0.1656) loss_ce_1: 0.3413 (0.4118) loss_bbox_1:
0.2514 (0.2871) loss_giou_1: 0.1497 (0.1614) loss_ce_enc: 0.6652 (0.6748)
loss_bbox_enc: 0.4745 (0.5119) loss_giou_enc: 0.2774 (0.2696)
loss_ce_unscaled: 0.3496 (0.3936) class_error_unscaled: 0.0000 (1.2722)
loss_bbox_unscaled: 0.0511 (0.0565) loss_giou_unscaled: 0.0734 (0.0795)
cardinality_error_unscaled: 3810.7500 (3724.8279) loss_ce_0_unscaled: 0.4963
(0.5456) loss_bbox_0_unscaled: 0.0578 (0.0593) loss_giou_0_unscaled: 0.0742
(0.0828) cardinality_error_0_unscaled: 3303.2500 (3468.5533)
loss_ce_1_unscaled: 0.3413 (0.4118) loss_bbox_1_unscaled: 0.0503 (0.0574)
loss_giou_1_unscaled: 0.0749 (0.0807) cardinality_error_1_unscaled: 3764.2500
(3720.7213) loss_ce_enc_unscaled: 0.6652 (0.6748) loss_bbox_enc_unscaled:
0.0949 (0.1024) loss_giou_enc_unscaled: 0.1387 (0.1348)
cardinality_error_enc_unscaled: 3482.7500 (3495.5656) time: 6.9278 data:
0.0484 max mem: 9284
Epoch: [11] [70/87] eta: 0:01:59 lr: 0.000100 class_error: 0.00 loss:
3.7948 (4.1161) loss_ce: 0.3496 (0.3892) loss_bbox: 0.2638 (0.2785)
loss_giou: 0.1451 (0.1592) loss_ce_0: 0.5216 (0.5405) loss_bbox_0: 0.2582
(0.2917) loss_giou_0: 0.1471 (0.1651) loss_ce_1: 0.3595 (0.4071) loss_bbox_1:
0.2419 (0.2847) loss_giou_1: 0.1502 (0.1620) loss_ce_enc: 0.6198 (0.6701)
loss_bbox_enc: 0.4905 (0.5008) loss_giou_enc: 0.2505 (0.2672)
loss_ce_unscaled: 0.3496 (0.3892) class_error_unscaled: 0.0000 (1.0931)
loss_bbox_unscaled: 0.0528 (0.0557) loss_giou_unscaled: 0.0726 (0.0796)
cardinality_error_unscaled: 3851.2500 (3736.1514) loss_ce_0_unscaled: 0.5216
(0.5405) loss_bbox_0_unscaled: 0.0516 (0.0583) loss_giou_0_unscaled: 0.0736
(0.0825) cardinality_error_0_unscaled: 3559.2500 (3482.2817)
loss_ce_1_unscaled: 0.3595 (0.4071) loss_bbox_1_unscaled: 0.0484 (0.0569)
loss_giou_1_unscaled: 0.0751 (0.0810) cardinality_error_1_unscaled: 3844.5000
(3730.7148) loss_ce_enc_unscaled: 0.6198 (0.6701) loss_bbox_enc_unscaled:
0.0981 (0.1002) loss_giou_enc_unscaled: 0.1253 (0.1336)
cardinality_error_enc_unscaled: 3705.0000 (3506.0986) time: 6.8499 data:
0.0488 max mem: 9284
Epoch: [11] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss:
3.8135 (4.1043) loss_ce: 0.3299 (0.3807) loss_bbox: 0.2941 (0.2826)
loss_giou: 0.1669 (0.1591) loss_ce_0: 0.5165 (0.5344) loss_bbox_0: 0.2595
(0.2922) loss_giou_0: 0.1616 (0.1647) loss_ce_1: 0.3619 (0.3992) loss_bbox_1:
0.2812 (0.2894) loss_giou_1: 0.1643 (0.1619) loss_ce_enc: 0.6494 (0.6685)
loss_bbox_enc: 0.4639 (0.5044) loss_giou_enc: 0.2550 (0.2672)
loss_ce_unscaled: 0.3299 (0.3807) class_error_unscaled: 0.0000 (0.9581)
loss_bbox_unscaled: 0.0588 (0.0565) loss_giou_unscaled: 0.0834 (0.0795)
cardinality_error_unscaled: 3871.7500 (3736.3827) loss_ce_0_unscaled: 0.5165
(0.5344) loss_bbox_0_unscaled: 0.0519 (0.0584) loss_giou_0_unscaled: 0.0808
(0.0824) cardinality_error_0_unscaled: 3722.0000 (3486.2500)
loss_ce_1_unscaled: 0.3619 (0.3992) loss_bbox_1_unscaled: 0.0562 (0.0579)

loss_giou_1_unscaled: 0.0822 (0.0810) cardinality_error_1_unscaled: 3869.7500 (3728.7469) loss_ce_enc_unscaled: 0.6494 (0.6685) loss_bbox_enc_unscaled: 0.0928 (0.1009) loss_giou_enc_unscaled: 0.1275 (0.1336) cardinality_error_enc_unscaled: 3727.0000 (3491.9352) time: 7.0629 data: 0.0495 max mem: 9284
Epoch: [11] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss: 3.8135 (4.1167) loss_ce: 0.3299 (0.3801) loss_bbox: 0.3010 (0.2853) loss_giou: 0.1579 (0.1612) loss_ce_0: 0.5165 (0.5334) loss_bbox_0: 0.3131 (0.2964) loss_giou_0: 0.1645 (0.1672) loss_ce_1: 0.3573 (0.3978) loss_bbox_1: 0.3223 (0.2917) loss_giou_1: 0.1662 (0.1637) loss_ce_enc: 0.6494 (0.6657) loss_bbox_enc: 0.5067 (0.5048) loss_giou_enc: 0.2679 (0.2694)
loss_ce_unscaled: 0.3299 (0.3801) class_error_unscaled: 0.0000 (0.8920) loss_bbox_unscaled: 0.0602 (0.0571) loss_giou_unscaled: 0.0789 (0.0806) cardinality_error_unscaled: 3881.5000 (3741.2126) loss_ce_0_unscaled: 0.5165 (0.5334) loss_bbox_0_unscaled: 0.0626 (0.0593) loss_giou_0_unscaled: 0.0823 (0.0836) cardinality_error_0_unscaled: 3785.0000 (3490.6379) loss_ce_1_unscaled: 0.3573 (0.3978) loss_bbox_1_unscaled: 0.0645 (0.0583) loss_giou_1_unscaled: 0.0831 (0.0819) cardinality_error_1_unscaled: 3883.0000 (3731.8966) loss_ce_enc_unscaled: 0.6494 (0.6657) loss_bbox_enc_unscaled: 0.1013 (0.1010) loss_giou_enc_unscaled: 0.1339 (0.1347) cardinality_error_enc_unscaled: 3727.0000 (3491.8247) time: 7.1512 data: 0.0488 max mem: 9284
Epoch: [11] Total time: 0:10:12 (7.0373 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 3.8135 (4.1167) loss_ce: 0.3299 (0.3801) loss_bbox: 0.3010 (0.2853) loss_giou: 0.1579 (0.1612) loss_ce_0: 0.5165 (0.5334) loss_bbox_0: 0.3131 (0.2964) loss_giou_0: 0.1645 (0.1672) loss_ce_1: 0.3573 (0.3978) loss_bbox_1: 0.3223 (0.2917) loss_giou_1: 0.1662 (0.1637) loss_ce_enc: 0.6494 (0.6657) loss_bbox_enc: 0.5067 (0.5048) loss_giou_enc: 0.2679 (0.2694) loss_ce_unscaled: 0.3299 (0.3801) class_error_unscaled: 0.0000 (0.8920) loss_bbox_unscaled: 0.0602 (0.0571) loss_giou_unscaled: 0.0789 (0.0806) cardinality_error_unscaled: 3881.5000 (3741.2126) loss_ce_0_unscaled: 0.5165 (0.5334) loss_bbox_0_unscaled: 0.0626 (0.0593) loss_giou_0_unscaled: 0.0823 (0.0836) cardinality_error_0_unscaled: 3785.0000 (3490.6379) loss_ce_1_unscaled: 0.3573 (0.3978) loss_bbox_1_unscaled: 0.0645 (0.0583) loss_giou_1_unscaled: 0.0831 (0.0819) cardinality_error_1_unscaled: 3883.0000 (3731.8966) loss_ce_enc_unscaled: 0.6494 (0.6657) loss_bbox_enc_unscaled: 0.1013 (0.1010) loss_giou_enc_unscaled: 0.1339 (0.1347) cardinality_error_enc_unscaled: 3727.0000 (3491.8247)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 5.1476 (5.1476) loss_ce: 0.6445 (0.6445) loss_bbox: 0.1997 (0.1997) loss_giou: 0.1225 (0.1225) loss_ce_0: 0.7695 (0.7695) loss_bbox_0: 0.2465 (0.2465) loss_giou_0: 0.1399 (0.1399) loss_ce_1: 0.4590 (0.4590) loss_bbox_1: 0.2436 (0.2436) loss_giou_1: 0.1280 (0.1280) loss_ce_enc: 0.8633 (0.8633) loss_bbox_enc: 0.9242 (0.9242) loss_giou_enc: 0.4068 (0.4068) loss_ce_unscaled: 0.6445 (0.6445) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0399 (0.0399) loss_giou_unscaled: 0.0612 (0.0612) cardinality_error_unscaled: 286.7500 (286.7500) loss_ce_0_unscaled: 0.7695 (0.7695) loss_bbox_0_unscaled: 0.0493

(0.0493) loss_giou_0_unscaled: 0.0700 (0.0700) cardinality_error_0_unscaled: 213.0000 (213.0000) loss_ce_1_unscaled: 0.4590 (0.4590) loss_bbox_1_unscaled: 0.0487 (0.0487) loss_giou_1_unscaled: 0.0640 (0.0640) cardinality_error_1_unscaled: 277.2500 (277.2500) loss_ce_enc_unscaled: 0.8633 (0.8633) loss_bbox_enc_unscaled: 0.1848 (0.1848) loss_giou_enc_unscaled: 0.2034 (0.2034) cardinality_error_enc_unscaled: 223.5000 (223.5000) time: 0.7207 data: 0.3689 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 14.29 loss: 5.1476 (5.3360) loss_ce: 0.5625 (0.5774) loss_bbox: 0.2560 (0.3300) loss_giou: 0.1546 (0.2014) loss_ce_0: 0.6875 (0.6777) loss_bbox_0: 0.3390 (0.3443) loss_giou_0: 0.1829 (0.2126) loss_ce_1: 0.6172 (0.6104) loss_bbox_1: 0.2829 (0.3744) loss_giou_1: 0.2127 (0.2187) loss_ce_enc: 0.8008 (0.8572) loss_bbox_enc: 0.5359 (0.5995) loss_giou_enc: 0.3039 (0.3321) loss_ce_unscaled: 0.5625 (0.5774) class_error_unscaled: 0.0000 (4.4805) loss_bbox_unscaled: 0.0512 (0.0660) loss_giou_unscaled: 0.0773 (0.1007) cardinality_error_unscaled: 286.7500 (285.1818) loss_ce_0_unscaled: 0.6875 (0.6777) loss_bbox_0_unscaled: 0.0678 (0.0689) loss_giou_0_unscaled: 0.0915 (0.1063) cardinality_error_0_unscaled: 259.7500 (258.5227) loss_ce_1_unscaled: 0.6172 (0.6104) loss_bbox_1_unscaled: 0.0566 (0.0749) loss_giou_1_unscaled: 0.1064 (0.1094) cardinality_error_1_unscaled: 281.0000 (279.7273) loss_ce_enc_unscaled: 0.8008 (0.8572) loss_bbox_enc_unscaled: 0.1072 (0.1199) loss_giou_enc_unscaled: 0.1520 (0.1661) cardinality_error_enc_unscaled: 242.0000 (255.5227) time: 0.3865 data: 0.0486 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.7270 (5.1330) loss_ce: 0.5312 (0.5687) loss_bbox: 0.2607 (0.3167) loss_giou: 0.1546 (0.1954) loss_ce_0: 0.6172 (0.6681) loss_bbox_0: 0.3390 (0.3510) loss_giou_0: 0.1889 (0.2111) loss_ce_1: 0.5430 (0.5740) loss_bbox_1: 0.2846 (0.3526) loss_giou_1: 0.1880 (0.2081) loss_ce_enc: 0.7500 (0.8090) loss_bbox_enc: 0.4881 (0.5657) loss_giou_enc: 0.2757 (0.3126) loss_ce_unscaled: 0.5312 (0.5687) class_error_unscaled: 0.0000 (6.9237) loss_bbox_unscaled: 0.0521 (0.0633) loss_giou_unscaled: 0.0773 (0.0977) cardinality_error_unscaled: 286.2500 (282.8095) loss_ce_0_unscaled: 0.6172 (0.6681) loss_bbox_0_unscaled: 0.0678 (0.0702) loss_giou_0_unscaled: 0.0945 (0.1056) cardinality_error_0_unscaled: 259.7500 (250.8452) loss_ce_1_unscaled: 0.5430 (0.5740) loss_bbox_1_unscaled: 0.0569 (0.0705) loss_giou_1_unscaled: 0.0940 (0.1041) cardinality_error_1_unscaled: 281.0000 (278.1190) loss_ce_enc_unscaled: 0.7500 (0.8090) loss_bbox_enc_unscaled: 0.0976 (0.1131) loss_giou_enc_unscaled: 0.1378 (0.1563) cardinality_error_enc_unscaled: 242.0000 (243.5000) time: 0.3219 data: 0.0187 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.3966 (4.9310) loss_ce: 0.4688 (0.5371) loss_bbox: 0.2556 (0.2953) loss_giou: 0.1659 (0.1931) loss_ce_0: 0.6641 (0.6536) loss_bbox_0: 0.3132 (0.3343) loss_giou_0: 0.2117 (0.2134) loss_ce_1: 0.5156 (0.5535) loss_bbox_1: 0.2526 (0.3186) loss_giou_1: 0.1692 (0.2030) loss_ce_enc: 0.7109 (0.7941) loss_bbox_enc: 0.4812 (0.5288) loss_giou_enc: 0.2653 (0.3062) loss_ce_unscaled: 0.4688 (0.5371) class_error_unscaled: 0.0000 (5.9219) loss_bbox_unscaled: 0.0511 (0.0591) loss_giou_unscaled: 0.0830 (0.0965) cardinality_error_unscaled: 295.5000 (285.3952) loss_ce_0_unscaled: 0.6641 (0.6536) loss_bbox_0_unscaled: 0.0626

(0.0669) loss_giou_0_unscaled: 0.1059 (0.1067) cardinality_error_0_unscaled: 284.7500 (259.5806) loss_ce_1_unscaled: 0.5156 (0.5535) loss_bbox_1_unscaled: 0.0505 (0.0637) loss_giou_1_unscaled: 0.0846 (0.1015) cardinality_error_1_unscaled: 294.5000 (282.4355) loss_ce_enc_unscaled: 0.7109 (0.7941) loss_bbox_enc_unscaled: 0.0962 (0.1058) loss_giou_enc_unscaled: 0.1326 (0.1531) cardinality_error_enc_unscaled: 275.5000 (254.6048) time: 0.2840 data: 0.0193 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.3780 (5.0245) loss_ce: 0.4688 (0.5305) loss_bbox: 0.2589 (0.3166) loss_giou: 0.1930 (0.2071) loss_ce_0: 0.6367 (0.6538) loss_bbox_0: 0.3398 (0.3552) loss_giou_0: 0.2187 (0.2266) loss_ce_1: 0.4883 (0.5456) loss_bbox_1: 0.2526 (0.3347) loss_giou_1: 0.1870 (0.2138) loss_ce_enc: 0.7578 (0.7948) loss_bbox_enc: 0.5018 (0.5303) loss_giou_enc: 0.2777 (0.3155) loss_ce_unscaled: 0.4688 (0.5305) class_error_unscaled: 0.0000 (5.0942) loss_bbox_unscaled: 0.0518 (0.0633) loss_giou_unscaled: 0.0965 (0.1035) cardinality_error_unscaled: 297.0000 (287.4013) loss_ce_0_unscaled: 0.6367 (0.6538) loss_bbox_0_unscaled: 0.0680 (0.0710) loss_giou_0_unscaled: 0.1093 (0.1133) cardinality_error_0_unscaled: 287.5000 (265.1579) loss_ce_1_unscaled: 0.4883 (0.5456) loss_bbox_1_unscaled: 0.0505 (0.0669) loss_giou_1_unscaled: 0.0935 (0.1069) cardinality_error_1_unscaled: 294.7500 (284.8553) loss_ce_enc_unscaled: 0.7578 (0.7948) loss_bbox_enc_unscaled: 0.1004 (0.1061) loss_giou_enc_unscaled: 0.1389 (0.1577) cardinality_error_enc_unscaled: 286.0000 (260.4211) time: 0.2710 data: 0.0171 max mem: 9284
Test: Total time: 0:00:11 (0.3116 s / it)
Averaged stats: class_error: 0.00 loss: 4.3780 (5.0245) loss_ce: 0.4688 (0.5305) loss_bbox: 0.2589 (0.3166) loss_giou: 0.1930 (0.2071) loss_ce_0: 0.6367 (0.6538) loss_bbox_0: 0.3398 (0.3552) loss_giou_0: 0.2187 (0.2266) loss_ce_1: 0.4883 (0.5456) loss_bbox_1: 0.2526 (0.3347) loss_giou_1: 0.1870 (0.2138) loss_ce_enc: 0.7578 (0.7948) loss_bbox_enc: 0.5018 (0.5303) loss_giou_enc: 0.2777 (0.3155) loss_ce_unscaled: 0.4688 (0.5305) class_error_unscaled: 0.0000 (5.0942) loss_bbox_unscaled: 0.0518 (0.0633) loss_giou_unscaled: 0.0965 (0.1035) cardinality_error_unscaled: 297.0000 (287.4013) loss_ce_0_unscaled: 0.6367 (0.6538) loss_bbox_0_unscaled: 0.0680 (0.0710) loss_giou_0_unscaled: 0.1093 (0.1133) cardinality_error_0_unscaled: 287.5000 (265.1579) loss_ce_1_unscaled: 0.4883 (0.5456) loss_bbox_1_unscaled: 0.0505 (0.0669) loss_giou_1_unscaled: 0.0935 (0.1069) cardinality_error_1_unscaled: 294.7500 (284.8553) loss_ce_enc_unscaled: 0.7578 (0.7948) loss_bbox_enc_unscaled: 0.1004 (0.1061) loss_giou_enc_unscaled: 0.1389 (0.1577) cardinality_error_enc_unscaled: 286.0000 (260.4211)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.755
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.922
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.841
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.321
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.765

```
Average Recall      (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.637
Average Recall      (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.846
Average Recall      (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.877
Average Recall      (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall      (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.632
Average Recall      (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.882
```

Test: [0/38] eta: 0:00:24 class_error: 0.00 loss: 4.5164 (4.5164) loss_ce: 0.3262 (0.3262) loss_bbox: 0.2695 (0.2695) loss_giou: 0.1576 (0.1576) loss_ce_0: 0.4766 (0.4766) loss_bbox_0: 0.2964 (0.2964) loss_giou_0: 0.1660 (0.1660) loss_ce_1: 0.3477 (0.3477) loss_bbox_1: 0.2768 (0.2768) loss_giou_1: 0.1567 (0.1567) loss_ce_enc: 0.8594 (0.8594) loss_bbox_enc: 0.7964 (0.7964) loss_giou_enc: 0.3874 (0.3874) loss_ce_unscaled: 0.3262 (0.3262) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0539 (0.0539) loss_giou_unscaled: 0.0788 (0.0788) cardinality_error_unscaled: 272.2500 (272.2500) loss_ce_0_unscaled: 0.4766 (0.4766) loss_bbox_0_unscaled: 0.0593 (0.0593) loss_giou_0_unscaled: 0.0830 (0.0830) cardinality_error_0_unscaled: 190.5000 (190.5000) loss_ce_1_unscaled: 0.3477 (0.3477) loss_bbox_1_unscaled: 0.0554 (0.0554) loss_giou_1_unscaled: 0.0784 (0.0784) cardinality_error_1_unscaled: 251.0000 (251.0000) loss_ce_enc_unscaled: 0.8594 (0.8594) loss_bbox_enc_unscaled: 0.1593 (0.1593) loss_giou_enc_unscaled: 0.1937 (0.1937) cardinality_error_enc_unscaled: 221.2500 (221.2500) time: 0.6401 data: 0.3325 max mem: 9284

Test: [10/38] eta: 0:00:09 class_error: 14.29 loss: 4.5164 (4.7771) loss_ce: 0.5078 (0.4964) loss_bbox: 0.2494 (0.3376) loss_giou: 0.1680 (0.2108) loss_ce_0: 0.6797 (0.6460) loss_bbox_0: 0.2740 (0.2766) loss_giou_0: 0.1660 (0.1891) loss_ce_1: 0.5547 (0.5308) loss_bbox_1: 0.2634 (0.3122) loss_giou_1: 0.1754 (0.2032) loss_ce_enc: 0.8164 (0.8008) loss_bbox_enc: 0.4668 (0.4857) loss_giou_enc: 0.3000 (0.2880) loss_ce_unscaled: 0.5078 (0.4964) class_error_unscaled: 0.0000 (4.4805) loss_bbox_unscaled: 0.0499 (0.0675) loss_giou_unscaled: 0.0840 (0.1054) cardinality_error_unscaled: 274.5000 (278.9545) loss_ce_0_unscaled: 0.6797 (0.6460) loss_bbox_0_unscaled: 0.0548 (0.0553) loss_giou_0_unscaled: 0.0830 (0.0945) cardinality_error_0_unscaled: 246.5000 (253.3409) loss_ce_1_unscaled: 0.5547 (0.5308) loss_bbox_1_unscaled: 0.0527 (0.0624) loss_giou_1_unscaled: 0.0877 (0.1016) cardinality_error_1_unscaled: 285.0000 (274.6364) loss_ce_enc_unscaled: 0.8164 (0.8008) loss_bbox_enc_unscaled: 0.0934 (0.0971) loss_giou_enc_unscaled: 0.1500 (0.1440) cardinality_error_enc_unscaled: 233.7500 (254.7045) time: 0.3222 data: 0.0449 max mem: 9284

Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.2837 (4.5606) loss_ce: 0.4082 (0.4649) loss_bbox: 0.2690 (0.3357) loss_giou: 0.1625 (0.1979) loss_ce_0: 0.5703 (0.5922) loss_bbox_0: 0.2566 (0.3115) loss_giou_0: 0.1625 (0.1923) loss_ce_1: 0.4629 (0.4741) loss_bbox_1: 0.2634 (0.3282) loss_giou_1: 0.1724 (0.1963) loss_ce_enc: 0.7266 (0.7446) loss_bbox_enc: 0.4101 (0.4552) loss_giou_enc: 0.2307 (0.2676) loss_ce_unscaled: 0.4082 (0.4649) class_error_unscaled: 0.0000 (4.4104) loss_bbox_unscaled: 0.0538 (0.0671) loss_giou_unscaled: 0.0812 (0.0989) cardinality_error_unscaled: 274.5000 (274.5714) loss_ce_0_unscaled: 0.5703 (0.5922) loss_bbox_0_unscaled: 0.0513 (0.0623) loss_giou_0_unscaled: 0.0812 (0.0961) cardinality_error_0_unscaled:

246.5000 (245.6905) loss_ce_1_unscaled: 0.4629 (0.4741) loss_bbox_1_unscaled:
0.0527 (0.0656) loss_giou_1_unscaled: 0.0862 (0.0982)
cardinality_error_1_unscaled: 285.0000 (270.4643) loss_ce_enc_unscaled: 0.7266
(0.7446) loss_bbox_enc_unscaled: 0.0820 (0.0910) loss_giou_enc_unscaled:
0.1153 (0.1338) cardinality_error_enc_unscaled: 233.7500 (242.0833) time:
0.3313 data: 0.0198 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.7973 (4.3401) loss_ce:
0.3887 (0.4346) loss_bbox: 0.2234 (0.2982) loss_giou: 0.1383 (0.1872)
loss_ce_0: 0.5234 (0.5834) loss_bbox_0: 0.2268 (0.2860) loss_giou_0: 0.1622
(0.1859) loss_ce_1: 0.4336 (0.4574) loss_bbox_1: 0.2163 (0.2946) loss_giou_1:
0.1467 (0.1871) loss_ce_enc: 0.6562 (0.7269) loss_bbox_enc: 0.4037 (0.4339)
loss_giou_enc: 0.2482 (0.2648) loss_ce_unscaled: 0.3887 (0.4346)
class_error_unscaled: 0.0000 (2.9877) loss_bbox_unscaled: 0.0447 (0.0596)
loss_giou_unscaled: 0.0691 (0.0936) cardinality_error_unscaled: 295.2500
(279.0081) loss_ce_0_unscaled: 0.5234 (0.5834) loss_bbox_0_unscaled: 0.0454
(0.0572) loss_giou_0_unscaled: 0.0811 (0.0930) cardinality_error_0_unscaled:
284.0000 (255.2823) loss_ce_1_unscaled: 0.4336 (0.4574) loss_bbox_1_unscaled:
0.0433 (0.0589) loss_giou_1_unscaled: 0.0733 (0.0935)
cardinality_error_1_unscaled: 292.0000 (274.9113) loss_ce_enc_unscaled: 0.6562
(0.7269) loss_bbox_enc_unscaled: 0.0807 (0.0868) loss_giou_enc_unscaled:
0.1241 (0.1324) cardinality_error_enc_unscaled: 274.2500 (253.9355) time:
0.3314 data: 0.0209 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 3.8211 (4.3863) loss_ce:
0.4043 (0.4309) loss_bbox: 0.2275 (0.3017) loss_giou: 0.1698 (0.1935)
loss_ce_0: 0.5547 (0.5825) loss_bbox_0: 0.2559 (0.3000) loss_giou_0: 0.1898
(0.1942) loss_ce_1: 0.4336 (0.4580) loss_bbox_1: 0.2244 (0.2966) loss_giou_1:
0.1720 (0.1923) loss_ce_enc: 0.6562 (0.7151) loss_bbox_enc: 0.4223 (0.4463)
loss_giou_enc: 0.2770 (0.2750) loss_ce_unscaled: 0.4043 (0.4309)
class_error_unscaled: 0.0000 (2.4373) loss_bbox_unscaled: 0.0455 (0.0603)
loss_giou_unscaled: 0.0849 (0.0968) cardinality_error_unscaled: 296.2500
(282.1842) loss_ce_0_unscaled: 0.5547 (0.5825) loss_bbox_0_unscaled: 0.0512
(0.0600) loss_giou_0_unscaled: 0.0949 (0.0971) cardinality_error_0_unscaled:
285.2500 (261.0066) loss_ce_1_unscaled: 0.4336 (0.4580) loss_bbox_1_unscaled:
0.0449 (0.0593) loss_giou_1_unscaled: 0.0860 (0.0962)
cardinality_error_1_unscaled: 295.0000 (278.6184) loss_ce_enc_unscaled: 0.6562
(0.7151) loss_bbox_enc_unscaled: 0.0845 (0.0893) loss_giou_enc_unscaled:
0.1385 (0.1375) cardinality_error_enc_unscaled: 294.7500 (260.5658) time:
0.3100 data: 0.0177 max mem: 9284
Test: Total time: 0:00:12 (0.3202 s / it)
Averaged stats: class_error: 0.00 loss: 3.8211 (4.3863) loss_ce: 0.4043
(0.4309) loss_bbox: 0.2275 (0.3017) loss_giou: 0.1698 (0.1935) loss_ce_0:
0.5547 (0.5825) loss_bbox_0: 0.2559 (0.3000) loss_giou_0: 0.1898 (0.1942)
loss_ce_1: 0.4336 (0.4580) loss_bbox_1: 0.2244 (0.2966) loss_giou_1: 0.1720
(0.1923) loss_ce_enc: 0.6562 (0.7151) loss_bbox_enc: 0.4223 (0.4463)
loss_giou_enc: 0.2770 (0.2750) loss_ce_unscaled: 0.4043 (0.4309)
class_error_unscaled: 0.0000 (2.4373) loss_bbox_unscaled: 0.0455 (0.0603)
loss_giou_unscaled: 0.0849 (0.0968) cardinality_error_unscaled: 296.2500
(282.1842) loss_ce_0_unscaled: 0.5547 (0.5825) loss_bbox_0_unscaled: 0.0512

(0.0600) loss_giou_0_unscaled: 0.0949 (0.0971) cardinality_error_0_unscaled: 285.2500 (261.0066) loss_ce_1_unscaled: 0.4336 (0.4580) loss_bbox_1_unscaled: 0.0449 (0.0593) loss_giou_1_unscaled: 0.0860 (0.0962) cardinality_error_1_unscaled: 295.0000 (278.6184) loss_ce_enc_unscaled: 0.6562 (0.7151) loss_bbox_enc_unscaled: 0.0845 (0.0893) loss_giou_enc_unscaled: 0.1385 (0.1375) cardinality_error_enc_unscaled: 294.7500 (260.5658)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.809
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.953
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.883
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.331
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.820
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.640
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.869
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.892
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.600
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.897
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [12] [0/87] eta: 0:12:17 lr: 0.000100 class_error: 0.00 loss: 5.0857 (5.0857) loss_ce: 0.4494 (0.4494) loss_bbox: 0.4226 (0.4226) loss_giou: 0.1922 (0.1922) loss_ce_0: 0.5412 (0.5412) loss_bbox_0: 0.3250 (0.3250) loss_giou_0: 0.1713 (0.1713) loss_ce_1: 0.5204 (0.5204) loss_bbox_1: 0.4704 (0.4704) loss_giou_1: 0.2085 (0.2085) loss_ce_enc: 0.7042 (0.7042) loss_bbox_enc: 0.7424 (0.7424) loss_giou_enc: 0.3382 (0.3382) loss_ce_unscaled: 0.4494 (0.4494) class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0845 (0.0845) loss_giou_unscaled: 0.0961 (0.0961) cardinality_error_unscaled: 3884.7500 (3884.7500) loss_ce_0_unscaled: 0.5412 (0.5412) loss_bbox_0_unscaled: 0.0650 (0.0650) loss_giou_0_unscaled: 0.0857 (0.0857) cardinality_error_0_unscaled: 3802.5000 (3802.5000) loss_ce_1_unscaled: 0.5204 (0.5204) loss_bbox_1_unscaled: 0.0941 (0.0941) loss_giou_1_unscaled: 0.1042 (0.1042) cardinality_error_1_unscaled: 3893.0000 (3893.0000) loss_ce_enc_unscaled: 0.7042 (0.7042) loss_bbox_enc_unscaled: 0.1485 (0.1485) loss_giou_enc_unscaled: 0.1691 (0.1691) cardinality_error_enc_unscaled: 3828.7500 (3828.7500) time: 8.4818 data: 1.1502 max mem: 9284
Epoch: [12] [10/87] eta: 0:09:23 lr: 0.000100 class_error: 0.00 loss: 4.7058 (4.4858) loss_ce: 0.3772 (0.4029) loss_bbox: 0.3875 (0.3451) loss_giou: 0.1919 (0.1818) loss_ce_0: 0.5155 (0.5277) loss_bbox_0: 0.3250 (0.3480) loss_giou_0: 0.1819 (0.1852) loss_ce_1: 0.4074 (0.4257) loss_bbox_1: 0.3814 (0.3472) loss_giou_1: 0.2005 (0.1844) loss_ce_enc: 0.6801 (0.6668) loss_bbox_enc: 0.4845 (0.5674) loss_giou_enc: 0.3161 (0.3037) loss_ce_unscaled: 0.3772 (0.4029) class_error_unscaled: 0.0000 (1.1364)

loss_bbox_unscaled: 0.0775 (0.0690) loss_giou_unscaled: 0.0959 (0.0909)
cardinality_error_unscaled: 3881.5000 (3796.7273) loss_ce_0_unscaled: 0.5155
(0.5277) loss_bbox_0_unscaled: 0.0650 (0.0696) loss_giou_0_unscaled: 0.0910
(0.0926) cardinality_error_0_unscaled: 3802.5000 (3631.5227)
loss_ce_1_unscaled: 0.4074 (0.4257) loss_bbox_1_unscaled: 0.0763 (0.0694)
loss_giou_1_unscaled: 0.1002 (0.0922) cardinality_error_1_unscaled: 3865.2500
(3765.2045) loss_ce_enc_unscaled: 0.6801 (0.6668) loss_bbox_enc_unscaled:
0.0969 (0.1135) loss_giou_enc_unscaled: 0.1581 (0.1519)
cardinality_error_enc_unscaled: 3828.7500 (3608.8864) time: 7.3127 data:
0.1449 max mem: 9284
Epoch: [12] [20/87] eta: 0:08:02 lr: 0.000100 class_error: 0.00 loss:
3.7799 (4.0683) loss_ce: 0.3550 (0.3559) loss_bbox: 0.2230 (0.2931)
loss_giou: 0.1671 (0.1593) loss_ce_0: 0.4345 (0.4788) loss_bbox_0: 0.2188
(0.3026) loss_giou_0: 0.1712 (0.1648) loss_ce_1: 0.3592 (0.3748) loss_bbox_1:
0.2152 (0.2966) loss_giou_1: 0.1771 (0.1620) loss_ce_enc: 0.6204 (0.6510)
loss_bbox_enc: 0.4937 (0.5465) loss_giou_enc: 0.2734 (0.2829)
loss_ce_unscaled: 0.3550 (0.3559) class_error_unscaled: 0.0000 (0.6868)
loss_bbox_unscaled: 0.0446 (0.0586) loss_giou_unscaled: 0.0836 (0.0796)
cardinality_error_unscaled: 3876.0000 (3770.4524) loss_ce_0_unscaled: 0.4345
(0.4788) loss_bbox_0_unscaled: 0.0438 (0.0605) loss_giou_0_unscaled: 0.0856
(0.0824) cardinality_error_0_unscaled: 3701.2500 (3523.0119)
loss_ce_1_unscaled: 0.3592 (0.3748) loss_bbox_1_unscaled: 0.0430 (0.0593)
loss_giou_1_unscaled: 0.0886 (0.0810) cardinality_error_1_unscaled: 3856.0000
(3720.0595) loss_ce_enc_unscaled: 0.6204 (0.6510) loss_bbox_enc_unscaled:
0.0987 (0.1093) loss_giou_enc_unscaled: 0.1367 (0.1415)
cardinality_error_enc_unscaled: 3751.7500 (3460.2500) time: 7.1446 data:
0.0463 max mem: 9284
Epoch: [12] [30/87] eta: 0:06:50 lr: 0.000100 class_error: 0.00 loss:
3.4461 (3.8656) loss_ce: 0.2553 (0.3307) loss_bbox: 0.1913 (0.2639)
loss_giou: 0.1101 (0.1508) loss_ce_0: 0.3975 (0.4586) loss_bbox_0: 0.2080
(0.2814) loss_giou_0: 0.1296 (0.1591) loss_ce_1: 0.2823 (0.3536) loss_bbox_1:
0.2146 (0.2700) loss_giou_1: 0.1193 (0.1536) loss_ce_enc: 0.6017 (0.6313)
loss_bbox_enc: 0.5073 (0.5345) loss_giou_enc: 0.2681 (0.2783)
loss_ce_unscaled: 0.2553 (0.3307) class_error_unscaled: 0.0000 (0.4653)
loss_bbox_unscaled: 0.0383 (0.0528) loss_giou_unscaled: 0.0550 (0.0754)
cardinality_error_unscaled: 3884.7500 (3789.6532) loss_ce_0_unscaled: 0.3975
(0.4586) loss_bbox_0_unscaled: 0.0416 (0.0563) loss_giou_0_unscaled: 0.0648
(0.0795) cardinality_error_0_unscaled: 3735.7500 (3570.6694)
loss_ce_1_unscaled: 0.2823 (0.3536) loss_bbox_1_unscaled: 0.0429 (0.0540)
loss_giou_1_unscaled: 0.0597 (0.0768) cardinality_error_1_unscaled: 3867.7500
(3744.2500) loss_ce_enc_unscaled: 0.6017 (0.6313) loss_bbox_enc_unscaled:
0.1015 (0.1069) loss_giou_enc_unscaled: 0.1340 (0.1391)
cardinality_error_enc_unscaled: 3751.7500 (3506.6774) time: 7.1302 data:
0.0484 max mem: 9284
Epoch: [12] [40/87] eta: 0:05:37 lr: 0.000100 class_error: 0.00 loss:
3.6022 (3.9469) loss_ce: 0.2727 (0.3499) loss_bbox: 0.2135 (0.2634)
loss_giou: 0.1304 (0.1497) loss_ce_0: 0.4186 (0.4856) loss_bbox_0: 0.2697
(0.2820) loss_giou_0: 0.1522 (0.1580) loss_ce_1: 0.3003 (0.3750) loss_bbox_1:

0.2355 (0.2702) loss_giou_1: 0.1282 (0.1524) loss_ce_enc: 0.6130 (0.6581)
loss_bbox_enc: 0.5006 (0.5293) loss_giou_enc: 0.2646 (0.2735)
loss_ce_unscaled: 0.2727 (0.3499) class_error_unscaled: 0.0000 (1.0218)
loss_bbox_unscaled: 0.0427 (0.0527) loss_giou_unscaled: 0.0652 (0.0748)
cardinality_error_unscaled: 3884.7500 (3788.3902) loss_ce_0_unscaled: 0.4186
(0.4856) loss_bbox_0_unscaled: 0.0539 (0.0564) loss_giou_0_unscaled: 0.0761
(0.0790) cardinality_error_0_unscaled: 3767.7500 (3567.9878)
loss_ce_1_unscaled: 0.3003 (0.3750) loss_bbox_1_unscaled: 0.0471 (0.0540)
loss_giou_1_unscaled: 0.0641 (0.0762) cardinality_error_1_unscaled: 3867.7500
(3739.5732) loss_ce_enc_unscaled: 0.6130 (0.6581) loss_bbox_enc_unscaled:
0.1001 (0.1059) loss_giou_enc_unscaled: 0.1323 (0.1367)
cardinality_error_enc_unscaled: 3753.2500 (3489.7561) time: 7.1699 data:
0.0484 max mem: 9284
Epoch: [12] [50/87] eta: 0:04:25 lr: 0.000100 class_error: 20.00 loss:
4.1381 (4.0087) loss_ce: 0.3431 (0.3713) loss_bbox: 0.2520 (0.2646)
loss_giou: 0.1428 (0.1514) loss_ce_0: 0.5320 (0.4927) loss_bbox_0: 0.2827
(0.2876) loss_giou_0: 0.1547 (0.1615) loss_ce_1: 0.4044 (0.3897) loss_bbox_1:
0.2499 (0.2714) loss_giou_1: 0.1506 (0.1545) loss_ce_enc: 0.6559 (0.6597)
loss_bbox_enc: 0.5094 (0.5274) loss_giou_enc: 0.2646 (0.2768)
loss_ce_unscaled: 0.3431 (0.3713) class_error_unscaled: 0.0000 (1.4938)
loss_bbox_unscaled: 0.0504 (0.0529) loss_giou_unscaled: 0.0714 (0.0757)
cardinality_error_unscaled: 3875.0000 (3759.6520) loss_ce_0_unscaled: 0.5320
(0.4927) loss_bbox_0_unscaled: 0.0565 (0.0575) loss_giou_0_unscaled: 0.0773
(0.0807) cardinality_error_0_unscaled: 3625.5000 (3518.7255)
loss_ce_1_unscaled: 0.4044 (0.3897) loss_bbox_1_unscaled: 0.0500 (0.0543)
loss_giou_1_unscaled: 0.0753 (0.0773) cardinality_error_1_unscaled: 3814.5000
(3698.3529) loss_ce_enc_unscaled: 0.6559 (0.6597) loss_bbox_enc_unscaled:
0.1019 (0.1055) loss_giou_enc_unscaled: 0.1323 (0.1384)
cardinality_error_enc_unscaled: 3501.7500 (3463.5441) time: 7.1337 data:
0.0493 max mem: 9284
Epoch: [12] [60/87] eta: 0:03:13 lr: 0.000100 class_error: 0.00 loss:
3.9290 (3.9682) loss_ce: 0.3431 (0.3663) loss_bbox: 0.2593 (0.2643)
loss_giou: 0.1499 (0.1525) loss_ce_0: 0.4763 (0.4885) loss_bbox_0: 0.2986
(0.2871) loss_giou_0: 0.1618 (0.1627) loss_ce_1: 0.3578 (0.3829) loss_bbox_1:
0.2689 (0.2726) loss_giou_1: 0.1550 (0.1562) loss_ce_enc: 0.6375 (0.6566)
loss_bbox_enc: 0.4860 (0.5095) loss_giou_enc: 0.2607 (0.2689)
loss_ce_unscaled: 0.3431 (0.3663) class_error_unscaled: 0.0000 (1.5326)
loss_bbox_unscaled: 0.0519 (0.0529) loss_giou_unscaled: 0.0750 (0.0763)
cardinality_error_unscaled: 3875.0000 (3750.9713) loss_ce_0_unscaled: 0.4763
(0.4885) loss_bbox_0_unscaled: 0.0597 (0.0574) loss_giou_0_unscaled: 0.0809
(0.0814) cardinality_error_0_unscaled: 3613.5000 (3495.4221)
loss_ce_1_unscaled: 0.3578 (0.3829) loss_bbox_1_unscaled: 0.0538 (0.0545)
loss_giou_1_unscaled: 0.0775 (0.0781) cardinality_error_1_unscaled: 3755.7500
(3688.1926) loss_ce_enc_unscaled: 0.6375 (0.6566) loss_bbox_enc_unscaled:
0.0972 (0.1019) loss_giou_enc_unscaled: 0.1304 (0.1345)
cardinality_error_enc_unscaled: 3584.0000 (3451.6107) time: 7.0917 data:
0.0495 max mem: 9284
Epoch: [12] [70/87] eta: 0:02:01 lr: 0.000100 class_error: 0.00 loss:

3.9290 (4.0183) loss_ce: 0.3483 (0.3725) loss_bbox: 0.2258 (0.2651)
loss_giou: 0.1483 (0.1519) loss_ce_0: 0.4834 (0.4978) loss_bbox_0: 0.2721
(0.2898) loss_giou_0: 0.1594 (0.1632) loss_ce_1: 0.3458 (0.3907) loss_bbox_1:
0.2458 (0.2705) loss_giou_1: 0.1557 (0.1549) loss_ce_enc: 0.6375 (0.6623)
loss_bbox_enc: 0.4472 (0.5253) loss_giou_enc: 0.2695 (0.2742)
loss_ce_unscaled: 0.3483 (0.3725) class_error_unscaled: 0.0000 (1.5984)
loss_bbox_unscaled: 0.0452 (0.0530) loss_giou_unscaled: 0.0741 (0.0760)
cardinality_error_unscaled: 3876.2500 (3740.0915) loss_ce_0_unscaled: 0.4834
(0.4978) loss_bbox_0_unscaled: 0.0544 (0.0580) loss_giou_0_unscaled: 0.0797
(0.0816) cardinality_error_0_unscaled: 3670.7500 (3484.3345)
loss_ce_1_unscaled: 0.3458 (0.3907) loss_bbox_1_unscaled: 0.0492 (0.0541)
loss_giou_1_unscaled: 0.0779 (0.0774) cardinality_error_1_unscaled: 3857.0000
(3679.1268) loss_ce_enc_unscaled: 0.6375 (0.6623) loss_bbox_enc_unscaled:
0.0894 (0.1051) loss_giou_enc_unscaled: 0.1348 (0.1371)
cardinality_error_enc_unscaled: 3584.0000 (3437.7711) time: 7.0894 data:
0.0493 max mem: 9284
Epoch: [12] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 25.00 loss:
4.2408 (4.0959) loss_ce: 0.3568 (0.3788) loss_bbox: 0.2699 (0.2720)
loss_giou: 0.1511 (0.1551) loss_ce_0: 0.4761 (0.5006) loss_bbox_0: 0.3054
(0.2997) loss_giou_0: 0.1953 (0.1676) loss_ce_1: 0.3461 (0.3955) loss_bbox_1:
0.2733 (0.2799) loss_giou_1: 0.1557 (0.1586) loss_ce_enc: 0.6765 (0.6686)
loss_bbox_enc: 0.5290 (0.5399) loss_giou_enc: 0.3124 (0.2797)
loss_ce_unscaled: 0.3568 (0.3788) class_error_unscaled: 0.0000 (1.7097)
loss_bbox_unscaled: 0.0540 (0.0544) loss_giou_unscaled: 0.0756 (0.0775)
cardinality_error_unscaled: 3870.7500 (3746.4475) loss_ce_0_unscaled: 0.4761
(0.5006) loss_bbox_0_unscaled: 0.0611 (0.0599) loss_giou_0_unscaled: 0.0976
(0.0838) cardinality_error_0_unscaled: 3572.2500 (3478.3457)
loss_ce_1_unscaled: 0.3461 (0.3955) loss_bbox_1_unscaled: 0.0547 (0.0560)
loss_giou_1_unscaled: 0.0779 (0.0793) cardinality_error_1_unscaled: 3825.5000
(3685.7222) loss_ce_enc_unscaled: 0.6765 (0.6686) loss_bbox_enc_unscaled:
0.1058 (0.1080) loss_giou_enc_unscaled: 0.1562 (0.1399)
cardinality_error_enc_unscaled: 3767.0000 (3454.0895) time: 7.0917 data:
0.0499 max mem: 9284
Epoch: [12] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 20.00 loss:
4.4796 (4.1090) loss_ce: 0.3534 (0.3795) loss_bbox: 0.3129 (0.2759)
loss_giou: 0.1698 (0.1572) loss_ce_0: 0.4687 (0.5007) loss_bbox_0: 0.3358
(0.3011) loss_giou_0: 0.1953 (0.1684) loss_ce_1: 0.3745 (0.3966) loss_bbox_1:
0.3110 (0.2840) loss_giou_1: 0.1616 (0.1611) loss_ce_enc: 0.6777 (0.6723)
loss_bbox_enc: 0.5016 (0.5342) loss_giou_enc: 0.3107 (0.2779)
loss_ce_unscaled: 0.3534 (0.3795) class_error_unscaled: 0.0000 (1.8217)
loss_bbox_unscaled: 0.0626 (0.0552) loss_giou_unscaled: 0.0849 (0.0786)
cardinality_error_unscaled: 3870.7500 (3755.4368) loss_ce_0_unscaled: 0.4687
(0.5007) loss_bbox_0_unscaled: 0.0672 (0.0602) loss_giou_0_unscaled: 0.0976
(0.0842) cardinality_error_0_unscaled: 3624.0000 (3495.8994)
loss_ce_1_unscaled: 0.3745 (0.3966) loss_bbox_1_unscaled: 0.0622 (0.0568)
loss_giou_1_unscaled: 0.0808 (0.0805) cardinality_error_1_unscaled: 3851.0000
(3697.7414) loss_ce_enc_unscaled: 0.6777 (0.6723) loss_bbox_enc_unscaled:
0.1003 (0.1068) loss_giou_enc_unscaled: 0.1554 (0.1390)

cardinality_error_enc_unscaled: 3779.0000 (3474.2328) time: 7.1295 data: 0.0487 max mem: 9284
Epoch: [12] Total time: 0:10:21 (7.1432 s / it)
Averaged stats: lr: 0.000100 class_error: 20.00 loss: 4.4796 (4.1090)
loss_ce: 0.3534 (0.3795) loss_bbox: 0.3129 (0.2759) loss_giou: 0.1698 (0.1572)
loss_ce_0: 0.4687 (0.5007) loss_bbox_0: 0.3358 (0.3011) loss_giou_0: 0.1953
(0.1684) loss_ce_1: 0.3745 (0.3966) loss_bbox_1: 0.3110 (0.2840) loss_giou_1:
0.1616 (0.1611) loss_ce_enc: 0.6777 (0.6723) loss_bbox_enc: 0.5016 (0.5342)
loss_giou_enc: 0.3107 (0.2779) loss_ce_unscaled: 0.3534 (0.3795)
class_error_unscaled: 0.0000 (1.8217) loss_bbox_unscaled: 0.0626 (0.0552)
loss_giou_unscaled: 0.0849 (0.0786) cardinality_error_unscaled: 3870.7500
(3755.4368) loss_ce_0_unscaled: 0.4687 (0.5007) loss_bbox_0_unscaled: 0.0672
(0.0602) loss_giou_0_unscaled: 0.0976 (0.0842) cardinality_error_0_unscaled:
3624.0000 (3495.8994) loss_ce_1_unscaled: 0.3745 (0.3966)
loss_bbox_1_unscaled: 0.0622 (0.0568) loss_giou_1_unscaled: 0.0808 (0.0805)
cardinality_error_1_unscaled: 3851.0000 (3697.7414) loss_ce_enc_unscaled:
0.6777 (0.6723) loss_bbox_enc_unscaled: 0.1003 (0.1068)
loss_giou_enc_unscaled: 0.1554 (0.1390) cardinality_error_enc_unscaled:
3779.0000 (3474.2328)
Test: [0/38] eta: 0:00:27 class_error: 0.00 loss: 4.6342 (4.6342) loss_ce:
0.3574 (0.3574) loss_bbox: 0.2674 (0.2674) loss_giou: 0.1724 (0.1724)
loss_ce_0: 0.4766 (0.4766) loss_bbox_0: 0.2932 (0.2932) loss_giou_0: 0.1718
(0.1718) loss_ce_1: 0.3672 (0.3672) loss_bbox_1: 0.3154 (0.3154) loss_giou_1:
0.1940 (0.1940) loss_ce_enc: 0.8984 (0.8984) loss_bbox_enc: 0.7733 (0.7733)
loss_giou_enc: 0.3472 (0.3472) loss_ce_unscaled: 0.3574 (0.3574)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0535 (0.0535)
loss_giou_unscaled: 0.0862 (0.0862) cardinality_error_unscaled: 284.7500
(284.7500) loss_ce_0_unscaled: 0.4766 (0.4766) loss_bbox_0_unscaled: 0.0586
(0.0586) loss_giou_0_unscaled: 0.0859 (0.0859) cardinality_error_0_unscaled:
219.0000 (219.0000) loss_ce_1_unscaled: 0.3672 (0.3672) loss_bbox_1_unscaled:
0.0631 (0.0631) loss_giou_1_unscaled: 0.0970 (0.0970)
cardinality_error_1_unscaled: 269.0000 (269.0000) loss_ce_enc_unscaled: 0.8984
(0.8984) loss_bbox_enc_unscaled: 0.1547 (0.1547) loss_giou_enc_unscaled:
0.1736 (0.1736) cardinality_error_enc_unscaled: 217.7500 (217.7500) time:
0.7176 data: 0.3599 max mem: 9284
Test: [10/38] eta: 0:00:08 class_error: 0.00 loss: 5.2269 (5.4849) loss_ce:
0.5391 (0.5621) loss_bbox: 0.3361 (0.4040) loss_giou: 0.2167 (0.2388)
loss_ce_0: 0.7695 (0.7028) loss_bbox_0: 0.3107 (0.3483) loss_giou_0: 0.2051
(0.2237) loss_ce_1: 0.7305 (0.6344) loss_bbox_1: 0.3154 (0.3579) loss_giou_1:
0.1943 (0.2151) loss_ce_enc: 0.8320 (0.8636) loss_bbox_enc: 0.6120 (0.5921)
loss_giou_enc: 0.3274 (0.3420) loss_ce_unscaled: 0.5391 (0.5621)
class_error_unscaled: 0.0000 (3.1818) loss_bbox_unscaled: 0.0672 (0.0808)
loss_giou_unscaled: 0.1083 (0.1194) cardinality_error_unscaled: 288.5000
(285.6591) loss_ce_0_unscaled: 0.7695 (0.7028) loss_bbox_0_unscaled: 0.0621
(0.0697) loss_giou_0_unscaled: 0.1025 (0.1118) cardinality_error_0_unscaled:
243.2500 (244.5455) loss_ce_1_unscaled: 0.7305 (0.6344) loss_bbox_1_unscaled:
0.0631 (0.0716) loss_giou_1_unscaled: 0.0972 (0.1075)
cardinality_error_1_unscaled: 283.0000 (277.6591) loss_ce_enc_unscaled: 0.8320

(0.8636) loss_bbox_enc_unscaled: 0.1224 (0.1184) loss_giou_enc_unscaled: 0.1637 (0.1710) cardinality_error_enc_unscaled: 226.2500 (242.1136) time: 0.3182 data: 0.0485 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 9.09 loss: 4.9555 (5.1737) loss_ce: 0.5391 (0.5690) loss_bbox: 0.2893 (0.3519) loss_giou: 0.1837 (0.2073) loss_ce_0: 0.6523 (0.6877) loss_bbox_0: 0.3102 (0.3261) loss_giou_0: 0.1825 (0.2040) loss_ce_1: 0.6367 (0.6048) loss_bbox_1: 0.3200 (0.3473) loss_giou_1: 0.1842 (0.2040) loss_ce_enc: 0.7734 (0.8279) loss_bbox_enc: 0.4862 (0.5355) loss_giou_enc: 0.2727 (0.3082) loss_ce_unscaled: 0.5391 (0.5690) class_error_unscaled: 0.0000 (7.0731) loss_bbox_unscaled: 0.0579 (0.0704) loss_giou_unscaled: 0.0919 (0.1036) cardinality_error_unscaled: 288.5000 (283.5357) loss_ce_0_unscaled: 0.6523 (0.6877) loss_bbox_0_unscaled: 0.0620 (0.0652) loss_giou_0_unscaled: 0.0912 (0.1020) cardinality_error_0_unscaled: 243.2500 (239.3095) loss_ce_1_unscaled: 0.6367 (0.6048) loss_bbox_1_unscaled: 0.0640 (0.0695) loss_giou_1_unscaled: 0.0921 (0.1020) cardinality_error_1_unscaled: 283.0000 (276.2738) loss_ce_enc_unscaled: 0.7734 (0.8279) loss_bbox_enc_unscaled: 0.0972 (0.1071) loss_giou_enc_unscaled: 0.1363 (0.1541) cardinality_error_enc_unscaled: 223.7500 (232.7976) time: 0.3117 data: 0.0184 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.5378 (4.9762) loss_ce: 0.4766 (0.5464) loss_bbox: 0.2328 (0.3230) loss_giou: 0.1622 (0.2019) loss_ce_0: 0.6445 (0.6700) loss_bbox_0: 0.2439 (0.3055) loss_giou_0: 0.1812 (0.2016) loss_ce_1: 0.5391 (0.5754) loss_bbox_1: 0.2509 (0.3225) loss_giou_1: 0.1842 (0.2010) loss_ce_enc: 0.7539 (0.8015) loss_bbox_enc: 0.4521 (0.5235) loss_giou_enc: 0.2613 (0.3037) loss_ce_unscaled: 0.4766 (0.5464) class_error_unscaled: 0.0000 (5.3780) loss_bbox_unscaled: 0.0466 (0.0646) loss_giou_unscaled: 0.0811 (0.1009) cardinality_error_unscaled: 294.0000 (285.8226) loss_ce_0_unscaled: 0.6445 (0.6700) loss_bbox_0_unscaled: 0.0488 (0.0611) loss_giou_0_unscaled: 0.0906 (0.1008) cardinality_error_0_unscaled: 274.7500 (249.2258) loss_ce_1_unscaled: 0.5391 (0.5754) loss_bbox_1_unscaled: 0.0502 (0.0645) loss_giou_1_unscaled: 0.0921 (0.1005) cardinality_error_1_unscaled: 293.2500 (279.9839) loss_ce_enc_unscaled: 0.7539 (0.8015) loss_bbox_enc_unscaled: 0.0904 (0.1047) loss_giou_enc_unscaled: 0.1307 (0.1518) cardinality_error_enc_unscaled: 275.7500 (246.5000) time: 0.3211 data: 0.0210 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.6000 (5.0156) loss_ce: 0.4629 (0.5420) loss_bbox: 0.2328 (0.3268) loss_giou: 0.1855 (0.2080) loss_ce_0: 0.6719 (0.6717) loss_bbox_0: 0.2584 (0.3100) loss_giou_0: 0.1972 (0.2085) loss_ce_1: 0.5039 (0.5733) loss_bbox_1: 0.2538 (0.3228) loss_giou_1: 0.1998 (0.2074) loss_ce_enc: 0.7422 (0.7940) loss_bbox_enc: 0.4588 (0.5361) loss_giou_enc: 0.2862 (0.3151) loss_ce_unscaled: 0.4629 (0.5420) class_error_unscaled: 0.0000 (4.6505) loss_bbox_unscaled: 0.0466 (0.0654) loss_giou_unscaled: 0.0928 (0.1040) cardinality_error_unscaled: 296.0000 (287.6645) loss_ce_0_unscaled: 0.6719 (0.6717) loss_bbox_0_unscaled: 0.0517 (0.0620) loss_giou_0_unscaled: 0.0986 (0.1043) cardinality_error_0_unscaled: 280.0000 (254.5592) loss_ce_1_unscaled: 0.5039 (0.5733) loss_bbox_1_unscaled: 0.0508 (0.0646) loss_giou_1_unscaled: 0.0999 (0.1037) cardinality_error_1_unscaled: 294.0000 (282.5395) loss_ce_enc_unscaled: 0.7422

(0.7940) loss_bbox_enc_unscaled: 0.0918 (0.1072) loss_giou_enc_unscaled:
0.1431 (0.1575) cardinality_error_enc_unscaled: 288.0000 (253.1776) time:
0.3143 data: 0.0203 max mem: 9284
Test: Total time: 0:00:11 (0.3112 s / it)
Averaged stats: class_error: 0.00 loss: 4.6000 (5.0156) loss_ce: 0.4629
(0.5420) loss_bbox: 0.2328 (0.3268) loss_giou: 0.1855 (0.2080) loss_ce_0:
0.6719 (0.6717) loss_bbox_0: 0.2584 (0.3100) loss_giou_0: 0.1972 (0.2085)
loss_ce_1: 0.5039 (0.5733) loss_bbox_1: 0.2538 (0.3228) loss_giou_1: 0.1998
(0.2074) loss_ce_enc: 0.7422 (0.7940) loss_bbox_enc: 0.4588 (0.5361)
loss_giou_enc: 0.2862 (0.3151) loss_ce_unscaled: 0.4629 (0.5420)
class_error_unscaled: 0.0000 (4.6505) loss_bbox_unscaled: 0.0466 (0.0654)
loss_giou_unscaled: 0.0928 (0.1040) cardinality_error_unscaled: 296.0000
(287.6645) loss_ce_0_unscaled: 0.6719 (0.6717) loss_bbox_0_unscaled: 0.0517
(0.0620) loss_giou_0_unscaled: 0.0986 (0.1043) cardinality_error_0_unscaled:
280.0000 (254.5592) loss_ce_1_unscaled: 0.5039 (0.5733) loss_bbox_1_unscaled:
0.0508 (0.0646) loss_giou_1_unscaled: 0.0999 (0.1037)
cardinality_error_1_unscaled: 294.0000 (282.5395) loss_ce_enc_unscaled: 0.7422
(0.7940) loss_bbox_enc_unscaled: 0.0918 (0.1072) loss_giou_enc_unscaled:
0.1431 (0.1575) cardinality_error_enc_unscaled: 288.0000 (253.1776)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.749
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.915
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.836
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = −1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.322
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.760
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.625
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.836
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.877
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = −1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.613
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.882
Test: [0/38] eta: 0:00:24 class_error: 0.00 loss: 4.2173 (4.2173) loss_ce:
0.2969 (0.2969) loss_bbox: 0.2431 (0.2431) loss_giou: 0.1440 (0.1440)
loss_ce_0: 0.4102 (0.4102) loss_bbox_0: 0.2431 (0.2431) loss_giou_0: 0.1351
(0.1351) loss_ce_1: 0.3125 (0.3125) loss_bbox_1: 0.2569 (0.2569) loss_giou_1:
0.1433 (0.1433) loss_ce_enc: 0.6992 (0.6992) loss_bbox_enc: 0.9176 (0.9176)
loss_giou_enc: 0.4155 (0.4155) loss_ce_unscaled: 0.2969 (0.2969)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0486 (0.0486)
loss_giou_unscaled: 0.0720 (0.0720) cardinality_error_unscaled: 273.5000
(273.5000) loss_ce_0_unscaled: 0.4102 (0.4102) loss_bbox_0_unscaled: 0.0486
(0.0486) loss_giou_0_unscaled: 0.0675 (0.0675) cardinality_error_0_unscaled:
195.0000 (195.0000) loss_ce_1_unscaled: 0.3125 (0.3125) loss_bbox_1_unscaled:
0.0514 (0.0514) loss_giou_1_unscaled: 0.0716 (0.0716)
cardinality_error_1_unscaled: 261.7500 (261.7500) loss_ce_enc_unscaled: 0.6992
(0.6992) loss_bbox_enc_unscaled: 0.1835 (0.1835) loss_giou_enc_unscaled:

0.2077 (0.2077) cardinality_error_enc_unscaled: 220.0000 (220.0000) time: 0.6332 data: 0.3472 max mem: 9284
Test: [10/38] eta: 0:00:08 class_error: 14.29 loss: 4.4667 (4.8915) loss_ce: 0.4941 (0.4924) loss_bbox: 0.2919 (0.3498) loss_giou: 0.1773 (0.2149) loss_ce_0: 0.7070 (0.6598) loss_bbox_0: 0.2786 (0.2803) loss_giou_0: 0.1569 (0.1908) loss_ce_1: 0.5078 (0.5220) loss_bbox_1: 0.2569 (0.3257) loss_giou_1: 0.1654 (0.2095) loss_ce_enc: 0.7500 (0.7937) loss_bbox_enc: 0.4586 (0.5361) loss_giou_enc: 0.3019 (0.3164) loss_ce_unscaled: 0.4941 (0.4924) class_error_unscaled: 0.0000 (4.4805) loss_bbox_unscaled: 0.0584 (0.0700) loss_giou_unscaled: 0.0886 (0.1074) cardinality_error_unscaled: 279.0000 (281.5682) loss_ce_0_unscaled: 0.7070 (0.6598) loss_bbox_0_unscaled: 0.0557 (0.0561) loss_giou_0_unscaled: 0.0784 (0.0954) cardinality_error_0_unscaled: 241.2500 (252.8409) loss_ce_1_unscaled: 0.5078 (0.5220) loss_bbox_1_unscaled: 0.0514 (0.0651) loss_giou_1_unscaled: 0.0827 (0.1048) cardinality_error_1_unscaled: 278.5000 (275.3864) loss_ce_enc_unscaled: 0.7500 (0.7937) loss_bbox_enc_unscaled: 0.0917 (0.1072) loss_giou_enc_unscaled: 0.1509 (0.1582) cardinality_error_enc_unscaled: 230.2500 (254.7273) time: 0.3204 data: 0.0465 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.3728 (4.5650) loss_ce: 0.4824 (0.4744) loss_bbox: 0.2795 (0.3207) loss_giou: 0.1616 (0.1931) loss_ce_0: 0.5508 (0.5893) loss_bbox_0: 0.2786 (0.3022) loss_giou_0: 0.1569 (0.1882) loss_ce_1: 0.4473 (0.4749) loss_bbox_1: 0.2761 (0.3320) loss_giou_1: 0.1649 (0.1984) loss_ce_enc: 0.6719 (0.7212) loss_bbox_enc: 0.4435 (0.4867) loss_giou_enc: 0.2569 (0.2839) loss_ce_unscaled: 0.4824 (0.4744) class_error_unscaled: 0.0000 (3.6168) loss_bbox_unscaled: 0.0559 (0.0641) loss_giou_unscaled: 0.0808 (0.0965) cardinality_error_unscaled: 279.0000 (278.3571) loss_ce_0_unscaled: 0.5508 (0.5893) loss_bbox_0_unscaled: 0.0557 (0.0604) loss_giou_0_unscaled: 0.0784 (0.0941) cardinality_error_0_unscaled: 241.2500 (245.2381) loss_ce_1_unscaled: 0.4473 (0.4749) loss_bbox_1_unscaled: 0.0552 (0.0664) loss_giou_1_unscaled: 0.0825 (0.0992) cardinality_error_1_unscaled: 278.5000 (271.0119) loss_ce_enc_unscaled: 0.6719 (0.7212) loss_bbox_enc_unscaled: 0.0887 (0.0973) loss_giou_enc_unscaled: 0.1284 (0.1419) cardinality_error_enc_unscaled: 230.2500 (241.9881) time: 0.2914 data: 0.0174 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.7722 (4.3567) loss_ce: 0.4062 (0.4372) loss_bbox: 0.2202 (0.2883) loss_giou: 0.1373 (0.1855) loss_ce_0: 0.5039 (0.5615) loss_bbox_0: 0.2322 (0.2917) loss_giou_0: 0.1629 (0.1872) loss_ce_1: 0.4238 (0.4521) loss_bbox_1: 0.2211 (0.2990) loss_giou_1: 0.1516 (0.1908) loss_ce_enc: 0.6367 (0.7104) loss_bbox_enc: 0.4343 (0.4711) loss_giou_enc: 0.2464 (0.2820) loss_ce_unscaled: 0.4062 (0.4372) class_error_unscaled: 0.0000 (2.4501) loss_bbox_unscaled: 0.0440 (0.0577) loss_giou_unscaled: 0.0686 (0.0927) cardinality_error_unscaled: 295.7500 (282.0968) loss_ce_0_unscaled: 0.5039 (0.5615) loss_bbox_0_unscaled: 0.0464 (0.0583) loss_giou_0_unscaled: 0.0815 (0.0936) cardinality_error_0_unscaled: 282.5000 (254.9677) loss_ce_1_unscaled: 0.4238 (0.4521) loss_bbox_1_unscaled: 0.0442 (0.0598) loss_giou_1_unscaled: 0.0758 (0.0954) cardinality_error_1_unscaled: 291.5000 (275.5242) loss_ce_enc_unscaled: 0.6367 (0.7104) loss_bbox_enc_unscaled: 0.0869 (0.0942) loss_giou_enc_unscaled:

```
0.1232 (0.1410)  cardinality_error_enc_unscaled: 271.0000 (253.7500)  time:
0.3324  data: 0.0205  max mem: 9284
Test:  [37/38]  eta: 0:00:00  class_error: 0.00  loss: 3.7816 (4.4232)  loss_ce:
0.4062 (0.4401)  loss_bbox: 0.2334 (0.2971)  loss_giou: 0.1797 (0.1933)
loss_ce_0: 0.5039 (0.5615)  loss_bbox_0: 0.2793 (0.3049)  loss_giou_0: 0.1888
(0.1981)  loss_ce_1: 0.4102 (0.4503)  loss_bbox_1: 0.2250 (0.3059)  loss_giou_1:
0.1869 (0.1988)  loss_ce_enc: 0.6367 (0.7012)  loss_bbox_enc: 0.4706 (0.4822)
loss_giou_enc: 0.2630 (0.2899)  loss_ce_unscaled: 0.4062 (0.4401)
class_error_unscaled: 0.0000 (2.3747)  loss_bbox_unscaled: 0.0467 (0.0594)
loss_giou_unscaled: 0.0899 (0.0967)  cardinality_error_unscaled: 296.7500
(284.7237)  loss_ce_0_unscaled: 0.5039 (0.5615)  loss_bbox_0_unscaled: 0.0559
(0.0610)  loss_giou_0_unscaled: 0.0944 (0.0990)  cardinality_error_0_unscaled:
285.5000 (261.1250)  loss_ce_1_unscaled: 0.4102 (0.4503)  loss_bbox_1_unscaled:
0.0450 (0.0612)  loss_giou_1_unscaled: 0.0935 (0.0994)
cardinality_error_1_unscaled: 293.5000 (279.1447)  loss_ce_enc_unscaled: 0.6367
(0.7012)  loss_bbox_enc_unscaled: 0.0941 (0.0964)  loss_giou_enc_unscaled:
0.1315 (0.1449)  cardinality_error_enc_unscaled: 294.2500 (260.2303)  time:
0.3282  data: 0.0197  max mem: 9284
Test: Total time: 0:00:12 (0.3212 s / it)
Averaged stats: class_error: 0.00  loss: 3.7816 (4.4232)  loss_ce: 0.4062
(0.4401)  loss_bbox: 0.2334 (0.2971)  loss_giou: 0.1797 (0.1933)  loss_ce_0:
0.5039 (0.5615)  loss_bbox_0: 0.2793 (0.3049)  loss_giou_0: 0.1888 (0.1981)
loss_ce_1: 0.4102 (0.4503)  loss_bbox_1: 0.2250 (0.3059)  loss_giou_1: 0.1869
(0.1988)  loss_ce_enc: 0.6367 (0.7012)  loss_bbox_enc: 0.4706 (0.4822)
loss_giou_enc: 0.2630 (0.2899)  loss_ce_unscaled: 0.4062 (0.4401)
class_error_unscaled: 0.0000 (2.3747)  loss_bbox_unscaled: 0.0467 (0.0594)
loss_giou_unscaled: 0.0899 (0.0967)  cardinality_error_unscaled: 296.7500
(284.7237)  loss_ce_0_unscaled: 0.5039 (0.5615)  loss_bbox_0_unscaled: 0.0559
(0.0610)  loss_giou_0_unscaled: 0.0944 (0.0990)  cardinality_error_0_unscaled:
285.5000 (261.1250)  loss_ce_1_unscaled: 0.4102 (0.4503)  loss_bbox_1_unscaled:
0.0450 (0.0612)  loss_giou_1_unscaled: 0.0935 (0.0994)
cardinality_error_1_unscaled: 293.5000 (279.1447)  loss_ce_enc_unscaled: 0.6367
(0.7012)  loss_bbox_enc_unscaled: 0.0941 (0.0964)  loss_giou_enc_unscaled:
0.1315 (0.1449)  cardinality_error_enc_unscaled: 294.2500 (260.2303)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.797
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.947
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.878
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.320
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.808
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.638
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.861
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.892
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.580
```

```
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.898
Grad accum steps:   4
Total batch size:   16
LENGTH OF DATA LOADER: 87
Epoch: [13]  [ 0/87]  eta: 0:12:10  lr: 0.000100  class_error: 0.00  loss:
4.2129 (4.2129)  loss_ce: 0.4461 (0.4461)  loss_bbox: 0.2425 (0.2425)
loss_giou: 0.1973 (0.1973)  loss_ce_0: 0.4397 (0.4397)  loss_bbox_0: 0.3125
(0.3125)  loss_giou_0: 0.2360 (0.2360)  loss_ce_1: 0.4373 (0.4373)  loss_bbox_1:
0.2794 (0.2794)  loss_giou_1: 0.2320 (0.2320)  loss_ce_enc: 0.6085 (0.6085)
loss_bbox_enc: 0.4749 (0.4749)  loss_giou_enc: 0.3067 (0.3067)
loss_ce_unscaled: 0.4461 (0.4461)  class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0485 (0.0485)  loss_giou_unscaled: 0.0986 (0.0986)
cardinality_error_unscaled: 3863.5000 (3863.5000)  loss_ce_0_unscaled: 0.4397
(0.4397)  loss_bbox_0_unscaled: 0.0625 (0.0625)  loss_giou_0_unscaled: 0.1180
(0.1180)  cardinality_error_0_unscaled: 3579.5000 (3579.5000)
loss_ce_1_unscaled: 0.4373 (0.4373)  loss_bbox_1_unscaled: 0.0559 (0.0559)
loss_giou_1_unscaled: 0.1160 (0.1160)  cardinality_error_1_unscaled: 3807.7500
(3807.7500)  loss_ce_enc_unscaled: 0.6085 (0.6085)  loss_bbox_enc_unscaled:
0.0950 (0.0950)  loss_giou_enc_unscaled: 0.1533 (0.1533)
cardinality_error_enc_unscaled: 3431.2500 (3431.2500)  time: 8.3931  data:
1.0706  max mem: 9284
Epoch: [13]  [10/87]  eta: 0:09:22  lr: 0.000100  class_error: -0.00  loss:
4.0651 (3.9551)  loss_ce: 0.3567 (0.3637)  loss_bbox: 0.2255 (0.2524)
loss_giou: 0.1488 (0.1660)  loss_ce_0: 0.4993 (0.5144)  loss_bbox_0: 0.2702
(0.2842)  loss_giou_0: 0.1613 (0.1774)  loss_ce_1: 0.3490 (0.3806)  loss_bbox_1:
0.2353 (0.2580)  loss_giou_1: 0.1418 (0.1706)  loss_ce_enc: 0.6575 (0.6403)
loss_bbox_enc: 0.4304 (0.4704)  loss_giou_enc: 0.3067 (0.2770)
loss_ce_unscaled: 0.3567 (0.3637)  class_error_unscaled: 0.0000 (-0.0000)
loss_bbox_unscaled: 0.0451 (0.0505)  loss_giou_unscaled: 0.0744 (0.0830)
cardinality_error_unscaled: 3863.5000 (3691.6818)  loss_ce_0_unscaled: 0.4993
(0.5144)  loss_bbox_0_unscaled: 0.0540 (0.0568)  loss_giou_0_unscaled: 0.0806
(0.0887)  cardinality_error_0_unscaled: 3579.5000 (3416.1136)
loss_ce_1_unscaled: 0.3490 (0.3806)  loss_bbox_1_unscaled: 0.0471 (0.0516)
loss_giou_1_unscaled: 0.0709 (0.0853)  cardinality_error_1_unscaled: 3807.7500
(3650.5682)  loss_ce_enc_unscaled: 0.6575 (0.6403)  loss_bbox_enc_unscaled:
0.0861 (0.0941)  loss_giou_enc_unscaled: 0.1533 (0.1385)
cardinality_error_enc_unscaled: 3493.2500 (3365.3636)  time: 7.3091  data:
0.1426  max mem: 9284
Epoch: [13]  [20/87]  eta: 0:08:06  lr: 0.000100  class_error: 0.00  loss:
3.6423 (3.9722)  loss_ce: 0.3167 (0.3578)  loss_bbox: 0.2255 (0.2560)
loss_giou: 0.1413 (0.1629)  loss_ce_0: 0.4993 (0.5245)  loss_bbox_0: 0.2505
(0.2755)  loss_giou_0: 0.1399 (0.1703)  loss_ce_1: 0.3274 (0.3783)  loss_bbox_1:
0.2353 (0.2577)  loss_giou_1: 0.1393 (0.1654)  loss_ce_enc: 0.6608 (0.6719)
loss_bbox_enc: 0.4141 (0.4770)  loss_giou_enc: 0.2490 (0.2748)
loss_ce_unscaled: 0.3167 (0.3578)  class_error_unscaled: 0.0000 (0.6803)
loss_bbox_unscaled: 0.0451 (0.0512)  loss_giou_unscaled: 0.0707 (0.0815)
cardinality_error_unscaled: 3881.0000 (3763.5238)  loss_ce_0_unscaled: 0.4993
(0.5245)  loss_bbox_0_unscaled: 0.0501 (0.0551)  loss_giou_0_unscaled: 0.0700
```

(0.0851) cardinality_error_0_unscaled: 3776.5000 (3532.9286)
loss_ce_1_unscaled: 0.3274 (0.3783) loss_bbox_1_unscaled: 0.0471 (0.0515)
loss_giou_1_unscaled: 0.0697 (0.0827) cardinality_error_1_unscaled: 3838.2500
(3710.1548) loss_ce_enc_unscaled: 0.6608 (0.6719) loss_bbox_enc_unscaled:
0.0828 (0.0954) loss_giou_enc_unscaled: 0.1245 (0.1374)
cardinality_error_enc_unscaled: 3837.5000 (3509.0714) time: 7.1970 data:
0.0493 max mem: 9284
Epoch: [13] [30/87] eta: 0:06:50 lr: 0.000100 class_error: 0.00 loss:
4.0902 (4.0775) loss_ce: 0.2822 (0.3668) loss_bbox: 0.2448 (0.2712)
loss_giou: 0.1413 (0.1668) loss_ce_0: 0.4887 (0.5237) loss_bbox_0: 0.2713
(0.2900) loss_giou_0: 0.1452 (0.1749) loss_ce_1: 0.3078 (0.3870) loss_bbox_1:
0.2595 (0.2739) loss_giou_1: 0.1369 (0.1685) loss_ce_enc: 0.6644 (0.6603)
loss_bbox_enc: 0.5031 (0.5123) loss_giou_enc: 0.2733 (0.2822)
loss_ce_unscaled: 0.2822 (0.3668) class_error_unscaled: 0.0000 (1.2880)
loss_bbox_unscaled: 0.0490 (0.0542) loss_giou_unscaled: 0.0707 (0.0834)
cardinality_error_unscaled: 3884.2500 (3774.4516) loss_ce_0_unscaled: 0.4887
(0.5237) loss_bbox_0_unscaled: 0.0543 (0.0580) loss_giou_0_unscaled: 0.0726
(0.0874) cardinality_error_0_unscaled: 3776.5000 (3527.6935)
loss_ce_1_unscaled: 0.3078 (0.3870) loss_bbox_1_unscaled: 0.0519 (0.0548)
loss_giou_1_unscaled: 0.0684 (0.0842) cardinality_error_1_unscaled: 3867.5000
(3719.5242) loss_ce_enc_unscaled: 0.6644 (0.6603) loss_bbox_enc_unscaled:
0.1006 (0.1025) loss_giou_enc_unscaled: 0.1366 (0.1411)
cardinality_error_enc_unscaled: 3826.7500 (3508.5484) time: 7.1385 data:
0.0496 max mem: 9284
Epoch: [13] [40/87] eta: 0:05:37 lr: 0.000100 class_error: -0.00 loss:
3.8731 (4.0578) loss_ce: 0.3384 (0.3640) loss_bbox: 0.2420 (0.2736)
loss_giou: 0.1697 (0.1695) loss_ce_0: 0.4824 (0.5144) loss_bbox_0: 0.2713
(0.2929) loss_giou_0: 0.1825 (0.1771) loss_ce_1: 0.3605 (0.3814) loss_bbox_1:
0.2595 (0.2780) loss_giou_1: 0.1791 (0.1720) loss_ce_enc: 0.6123 (0.6491)
loss_bbox_enc: 0.5319 (0.5064) loss_giou_enc: 0.2926 (0.2793)
loss_ce_unscaled: 0.3384 (0.3640) class_error_unscaled: 0.0000 (0.9738)
loss_bbox_unscaled: 0.0484 (0.0547) loss_giou_unscaled: 0.0848 (0.0847)
cardinality_error_unscaled: 3877.5000 (3771.3354) loss_ce_0_unscaled: 0.4824
(0.5144) loss_bbox_0_unscaled: 0.0543 (0.0586) loss_giou_0_unscaled: 0.0912
(0.0886) cardinality_error_0_unscaled: 3767.0000 (3493.7744)
loss_ce_1_unscaled: 0.3605 (0.3814) loss_bbox_1_unscaled: 0.0519 (0.0556)
loss_giou_1_unscaled: 0.0896 (0.0860) cardinality_error_1_unscaled: 3872.0000
(3707.0305) loss_ce_enc_unscaled: 0.6123 (0.6491) loss_bbox_enc_unscaled:
0.1064 (0.1013) loss_giou_enc_unscaled: 0.1463 (0.1396)
cardinality_error_enc_unscaled: 3753.7500 (3460.0610) time: 7.0909 data:
0.0492 max mem: 9284
Epoch: [13] [50/87] eta: 0:04:25 lr: 0.000100 class_error: 0.00 loss:
3.8257 (3.9546) loss_ce: 0.3058 (0.3463) loss_bbox: 0.2327 (0.2641)
loss_giou: 0.1412 (0.1596) loss_ce_0: 0.4424 (0.4965) loss_bbox_0: 0.2454
(0.2857) loss_giou_0: 0.1443 (0.1677) loss_ce_1: 0.3332 (0.3654) loss_bbox_1:
0.2308 (0.2708) loss_giou_1: 0.1301 (0.1628) loss_ce_enc: 0.6224 (0.6524)
loss_bbox_enc: 0.5105 (0.5088) loss_giou_enc: 0.2540 (0.2746)
loss_ce_unscaled: 0.3058 (0.3463) class_error_unscaled: 0.0000 (0.7829)

loss_bbox_unscaled: 0.0465 (0.0528) loss_giou_unscaled: 0.0706 (0.0798)
cardinality_error_unscaled: 3883.0000 (3784.7941) loss_ce_0_unscaled: 0.4424
(0.4965) loss_bbox_0_unscaled: 0.0491 (0.0571) loss_giou_0_unscaled: 0.0721
(0.0838) cardinality_error_0_unscaled: 3816.0000 (3538.3922)
loss_ce_1_unscaled: 0.3332 (0.3654) loss_bbox_1_unscaled: 0.0462 (0.0542)
loss_giou_1_unscaled: 0.0651 (0.0814) cardinality_error_1_unscaled: 3872.0000
(3731.1078) loss_ce_enc_unscaled: 0.6224 (0.6524) loss_bbox_enc_unscaled:
0.1021 (0.1018) loss_giou_enc_unscaled: 0.1270 (0.1373)
cardinality_error_enc_unscaled: 3844.2500 (3518.3333) time: 7.1377 data:
0.0484 max mem: 9284
Epoch: [13] [60/87] eta: 0:03:13 lr: 0.000100 class_error: 0.00 loss:
3.3635 (3.9026) loss_ce: 0.2394 (0.3373) loss_bbox: 0.2327 (0.2652)
loss_giou: 0.1184 (0.1566) loss_ce_0: 0.3843 (0.4887) loss_bbox_0: 0.2364
(0.2820) loss_giou_0: 0.1293 (0.1633) loss_ce_1: 0.2665 (0.3541) loss_bbox_1:
0.2235 (0.2728) loss_giou_1: 0.1187 (0.1605) loss_ce_enc: 0.6224 (0.6463)
loss_bbox_enc: 0.5006 (0.5050) loss_giou_enc: 0.2416 (0.2708)
loss_ce_unscaled: 0.2394 (0.3373) class_error_unscaled: 0.0000 (0.6545)
loss_bbox_unscaled: 0.0465 (0.0530) loss_giou_unscaled: 0.0592 (0.0783)
cardinality_error_unscaled: 3883.0000 (3782.0574) loss_ce_0_unscaled: 0.3843
(0.4887) loss_bbox_0_unscaled: 0.0473 (0.0564) loss_giou_0_unscaled: 0.0646
(0.0817) cardinality_error_0_unscaled: 3817.0000 (3525.5041)
loss_ce_1_unscaled: 0.2665 (0.3541) loss_bbox_1_unscaled: 0.0447 (0.0546)
loss_giou_1_unscaled: 0.0593 (0.0802) cardinality_error_1_unscaled: 3860.2500
(3722.4344) loss_ce_enc_unscaled: 0.6224 (0.6463) loss_bbox_enc_unscaled:
0.1001 (0.1010) loss_giou_enc_unscaled: 0.1208 (0.1354)
cardinality_error_enc_unscaled: 3799.5000 (3489.9467) time: 7.1241 data:
0.0494 max mem: 9284
Epoch: [13] [70/87] eta: 0:02:01 lr: 0.000100 class_error: 0.00 loss:
3.6599 (3.9355) loss_ce: 0.2942 (0.3426) loss_bbox: 0.2553 (0.2690)
loss_giou: 0.1262 (0.1557) loss_ce_0: 0.3816 (0.4869) loss_bbox_0: 0.2566
(0.2873) loss_giou_0: 0.1402 (0.1627) loss_ce_1: 0.2830 (0.3584) loss_bbox_1:
0.2595 (0.2774) loss_giou_1: 0.1274 (0.1595) loss_ce_enc: 0.6455 (0.6551)
loss_bbox_enc: 0.5054 (0.5100) loss_giou_enc: 0.2524 (0.2708)
loss_ce_unscaled: 0.2942 (0.3426) class_error_unscaled: 0.0000 (0.8440)
loss_bbox_unscaled: 0.0511 (0.0538) loss_giou_unscaled: 0.0631 (0.0778)
cardinality_error_unscaled: 3802.7500 (3780.0880) loss_ce_0_unscaled: 0.3816
(0.4869) loss_bbox_0_unscaled: 0.0513 (0.0575) loss_giou_0_unscaled: 0.0701
(0.0814) cardinality_error_0_unscaled: 3349.7500 (3519.0106)
loss_ce_1_unscaled: 0.2830 (0.3584) loss_bbox_1_unscaled: 0.0519 (0.0555)
loss_giou_1_unscaled: 0.0637 (0.0797) cardinality_error_1_unscaled: 3706.2500
(3723.7042) loss_ce_enc_unscaled: 0.6455 (0.6551) loss_bbox_enc_unscaled:
0.1011 (0.1020) loss_giou_enc_unscaled: 0.1262 (0.1354)
cardinality_error_enc_unscaled: 3218.0000 (3471.5563) time: 7.0774 data:
0.0496 max mem: 9284
Epoch: [13] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 0.00 loss:
4.2340 (3.9677) loss_ce: 0.3519 (0.3482) loss_bbox: 0.2670 (0.2693)
loss_giou: 0.1385 (0.1592) loss_ce_0: 0.4678 (0.4912) loss_bbox_0: 0.2729
(0.2891) loss_giou_0: 0.1673 (0.1664) loss_ce_1: 0.3712 (0.3634) loss_bbox_1:

0.2645 (0.2770) loss_giou_1: 0.1585 (0.1628) loss_ce_enc: 0.6574 (0.6582)
loss_bbox_enc: 0.5054 (0.5087) loss_giou_enc: 0.2734 (0.2743)
loss_ce_unscaled: 0.3519 (0.3482) class_error_unscaled: 0.0000 (0.7398)
loss_bbox_unscaled: 0.0534 (0.0539) loss_giou_unscaled: 0.0693 (0.0796)
cardinality_error_unscaled: 3888.7500 (3786.4537) loss_ce_0_unscaled: 0.4678
(0.4912) loss_bbox_0_unscaled: 0.0546 (0.0578) loss_giou_0_unscaled: 0.0837
(0.0832) cardinality_error_0_unscaled: 3832.5000 (3537.9475)
loss_ce_1_unscaled: 0.3712 (0.3634) loss_bbox_1_unscaled: 0.0529 (0.0554)
loss_giou_1_unscaled: 0.0792 (0.0814) cardinality_error_1_unscaled: 3880.7500
(3734.9012) loss_ce_enc_unscaled: 0.6574 (0.6582) loss_bbox_enc_unscaled:
0.1011 (0.1017) loss_giou_enc_unscaled: 0.1367 (0.1372)
cardinality_error_enc_unscaled: 3810.2500 (3498.4815) time: 6.9849 data:
0.0488 max mem: 9284
Epoch: [13] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss:
4.2735 (3.9746) loss_ce: 0.3519 (0.3537) loss_bbox: 0.2840 (0.2672)
loss_giou: 0.1493 (0.1592) loss_ce_0: 0.4969 (0.4964) loss_bbox_0: 0.3168
(0.2881) loss_giou_0: 0.1683 (0.1673) loss_ce_1: 0.3712 (0.3694) loss_bbox_1:
0.2686 (0.2741) loss_giou_1: 0.1585 (0.1626) loss_ce_enc: 0.7100 (0.6621)
loss_bbox_enc: 0.4431 (0.5016) loss_giou_enc: 0.2734 (0.2730)
loss_ce_unscaled: 0.3519 (0.3537) class_error_unscaled: 0.0000 (0.9272)
loss_bbox_unscaled: 0.0568 (0.0534) loss_giou_unscaled: 0.0746 (0.0796)
cardinality_error_unscaled: 3888.7500 (3792.3534) loss_ce_0_unscaled: 0.4969
(0.4964) loss_bbox_0_unscaled: 0.0634 (0.0576) loss_giou_0_unscaled: 0.0842
(0.0837) cardinality_error_0_unscaled: 3843.7500 (3554.4339)
loss_ce_1_unscaled: 0.3712 (0.3694) loss_bbox_1_unscaled: 0.0537 (0.0548)
loss_giou_1_unscaled: 0.0792 (0.0813) cardinality_error_1_unscaled: 3880.7500
(3742.9971) loss_ce_enc_unscaled: 0.7100 (0.6621) loss_bbox_enc_unscaled:
0.0886 (0.1003) loss_giou_enc_unscaled: 0.1367 (0.1365)
cardinality_error_enc_unscaled: 3820.2500 (3516.7385) time: 7.0305 data:
0.0498 max mem: 9284
Epoch: [13] Total time: 0:10:19 (7.1202 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 4.2735 (3.9746) loss_ce:
0.3519 (0.3537) loss_bbox: 0.2840 (0.2672) loss_giou: 0.1493 (0.1592)
loss_ce_0: 0.4969 (0.4964) loss_bbox_0: 0.3168 (0.2881) loss_giou_0: 0.1683
(0.1673) loss_ce_1: 0.3712 (0.3694) loss_bbox_1: 0.2686 (0.2741) loss_giou_1:
0.1585 (0.1626) loss_ce_enc: 0.7100 (0.6621) loss_bbox_enc: 0.4431 (0.5016)
loss_giou_enc: 0.2734 (0.2730) loss_ce_unscaled: 0.3519 (0.3537)
class_error_unscaled: 0.0000 (0.9272) loss_bbox_unscaled: 0.0568 (0.0534)
loss_giou_unscaled: 0.0746 (0.0796) cardinality_error_unscaled: 3888.7500
(3792.3534) loss_ce_0_unscaled: 0.4969 (0.4964) loss_bbox_0_unscaled: 0.0634
(0.0576) loss_giou_0_unscaled: 0.0842 (0.0837) cardinality_error_0_unscaled:
3843.7500 (3554.4339) loss_ce_1_unscaled: 0.3712 (0.3694)
loss_bbox_1_unscaled: 0.0537 (0.0548) loss_giou_1_unscaled: 0.0792 (0.0813)
cardinality_error_1_unscaled: 3880.7500 (3742.9971) loss_ce_enc_unscaled:
0.7100 (0.6621) loss_bbox_enc_unscaled: 0.0886 (0.1003)
loss_giou_enc_unscaled: 0.1367 (0.1365) cardinality_error_enc_unscaled:
3820.2500 (3516.7385)
Test: [0/38] eta: 0:00:34 class_error: 0.00 loss: 4.1004 (4.1004) loss_ce:

0.3555 (0.3555) loss_bbox: 0.2578 (0.2578) loss_giou: 0.1392 (0.1392)
loss_ce_0: 0.4883 (0.4883) loss_bbox_0: 0.3443 (0.3443) loss_giou_0: 0.1638
(0.1638) loss_ce_1: 0.3379 (0.3379) loss_bbox_1: 0.2986 (0.2986) loss_giou_1:
0.1488 (0.1488) loss_ce_enc: 0.7148 (0.7148) loss_bbox_enc: 0.5928 (0.5928)
loss_giou_enc: 0.2586 (0.2586) loss_ce_unscaled: 0.3555 (0.3555)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0516 (0.0516)
loss_giou_unscaled: 0.0696 (0.0696) cardinality_error_unscaled: 290.0000
(290.0000) loss_ce_0_unscaled: 0.4883 (0.4883) loss_bbox_0_unscaled: 0.0689
(0.0689) loss_giou_0_unscaled: 0.0819 (0.0819) cardinality_error_0_unscaled:
228.0000 (228.0000) loss_ce_1_unscaled: 0.3379 (0.3379) loss_bbox_1_unscaled:
0.0597 (0.0597) loss_giou_1_unscaled: 0.0744 (0.0744)
cardinality_error_1_unscaled: 277.7500 (277.7500) loss_ce_enc_unscaled: 0.7148
(0.7148) loss_bbox_enc_unscaled: 0.1186 (0.1186) loss_giou_enc_unscaled:
0.1293 (0.1293) cardinality_error_enc_unscaled: 224.5000 (224.5000) time:
0.9024 data: 0.4949 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 14.29 loss: 4.9068 (5.3426)
loss_ce: 0.5703 (0.5542) loss_bbox: 0.3600 (0.3593) loss_giou: 0.2063 (0.2227)
loss_ce_0: 0.6602 (0.6584) loss_bbox_0: 0.3674 (0.3948) loss_giou_0: 0.2263
(0.2290) loss_ce_1: 0.6641 (0.5865) loss_bbox_1: 0.3793 (0.3695) loss_giou_1:
0.1978 (0.2166) loss_ce_enc: 0.8516 (0.8331) loss_bbox_enc: 0.5886 (0.5814)
loss_giou_enc: 0.3083 (0.3374) loss_ce_unscaled: 0.5703 (0.5542)
class_error_unscaled: 0.0000 (6.7532) loss_bbox_unscaled: 0.0720 (0.0719)
loss_giou_unscaled: 0.1031 (0.1113) cardinality_error_unscaled: 290.0000
(291.2273) loss_ce_0_unscaled: 0.6602 (0.6584) loss_bbox_0_unscaled: 0.0735
(0.0790) loss_giou_0_unscaled: 0.1132 (0.1145) cardinality_error_0_unscaled:
262.2500 (259.0227) loss_ce_1_unscaled: 0.6641 (0.5865) loss_bbox_1_unscaled:
0.0759 (0.0739) loss_giou_1_unscaled: 0.0989 (0.1083)
cardinality_error_1_unscaled: 284.5000 (285.9545) loss_ce_enc_unscaled: 0.8516
(0.8331) loss_bbox_enc_unscaled: 0.1177 (0.1163) loss_giou_enc_unscaled:
0.1541 (0.1687) cardinality_error_enc_unscaled: 248.5000 (257.6364) time:
0.3490 data: 0.0629 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 4.8788 (5.0438) loss_ce:
0.5195 (0.5170) loss_bbox: 0.2997 (0.3599) loss_giou: 0.1912 (0.2057)
loss_ce_0: 0.6172 (0.6180) loss_bbox_0: 0.3714 (0.3934) loss_giou_0: 0.2053
(0.2223) loss_ce_1: 0.5391 (0.5355) loss_bbox_1: 0.3417 (0.3590) loss_giou_1:
0.1743 (0.2045) loss_ce_enc: 0.7695 (0.7728) loss_bbox_enc: 0.5150 (0.5387)
loss_giou_enc: 0.2921 (0.3169) loss_ce_unscaled: 0.5195 (0.5170)
class_error_unscaled: 0.0000 (5.5215) loss_bbox_unscaled: 0.0599 (0.0720)
loss_giou_unscaled: 0.0956 (0.1028) cardinality_error_unscaled: 288.5000
(288.3333) loss_ce_0_unscaled: 0.6172 (0.6180) loss_bbox_0_unscaled: 0.0743
(0.0787) loss_giou_0_unscaled: 0.1026 (0.1112) cardinality_error_0_unscaled:
262.2500 (251.6905) loss_ce_1_unscaled: 0.5391 (0.5355) loss_bbox_1_unscaled:
0.0683 (0.0718) loss_giou_1_unscaled: 0.0872 (0.1023)
cardinality_error_1_unscaled: 284.5000 (283.3214) loss_ce_enc_unscaled: 0.7695
(0.7728) loss_bbox_enc_unscaled: 0.1030 (0.1077) loss_giou_enc_unscaled:
0.1461 (0.1585) cardinality_error_enc_unscaled: 248.5000 (245.9881) time:
0.2857 data: 0.0195 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 4.3005 (4.8382) loss_ce:

0.4180 (0.4966) loss_bbox: 0.2498 (0.3325) loss_giou: 0.1633 (0.2011)
loss_ce_0: 0.5547 (0.6182) loss_bbox_0: 0.2281 (0.3447) loss_giou_0: 0.1699
(0.2090) loss_ce_1: 0.4043 (0.5242) loss_bbox_1: 0.2016 (0.3323) loss_giou_1:
0.1635 (0.2004) loss_ce_enc: 0.6641 (0.7492) loss_bbox_enc: 0.4469 (0.5208)
loss_giou_enc: 0.2769 (0.3093) loss_ce_unscaled: 0.4180 (0.4966)
class_error_unscaled: 0.0000 (4.3856) loss_bbox_unscaled: 0.0500 (0.0665)
loss_giou_unscaled: 0.0816 (0.1005) cardinality_error_unscaled: 297.0000
(290.6048) loss_ce_0_unscaled: 0.5547 (0.6182) loss_bbox_0_unscaled: 0.0456
(0.0689) loss_giou_0_unscaled: 0.0850 (0.1045) cardinality_error_0_unscaled:
292.2500 (261.4516) loss_ce_1_unscaled: 0.4043 (0.5242) loss_bbox_1_unscaled:
0.0403 (0.0665) loss_giou_1_unscaled: 0.0817 (0.1002)
cardinality_error_1_unscaled: 295.5000 (286.6371) loss_ce_enc_unscaled: 0.6641
(0.7492) loss_bbox_enc_unscaled: 0.0894 (0.1042) loss_giou_enc_unscaled:
0.1385 (0.1547) cardinality_error_enc_unscaled: 286.7500 (257.3145) time:
0.3052 data: 0.0457 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.4047 (4.8483) loss_ce:
0.4492 (0.4909) loss_bbox: 0.2543 (0.3330) loss_giou: 0.1879 (0.2079)
loss_ce_0: 0.5898 (0.6127) loss_bbox_0: 0.2281 (0.3492) loss_giou_0: 0.1840
(0.2162) loss_ce_1: 0.4531 (0.5205) loss_bbox_1: 0.2462 (0.3311) loss_giou_1:
0.1881 (0.2051) loss_ce_enc: 0.6523 (0.7339) loss_bbox_enc: 0.4728 (0.5302)
loss_giou_enc: 0.2863 (0.3176) loss_ce_unscaled: 0.4492 (0.4909)
class_error_unscaled: 0.0000 (3.5777) loss_bbox_unscaled: 0.0509 (0.0666)
loss_giou_unscaled: 0.0940 (0.1040) cardinality_error_unscaled: 297.2500
(291.8224) loss_ce_0_unscaled: 0.5898 (0.6127) loss_bbox_0_unscaled: 0.0456
(0.0698) loss_giou_0_unscaled: 0.0920 (0.1081) cardinality_error_0_unscaled:
293.5000 (267.2303) loss_ce_1_unscaled: 0.4531 (0.5205) loss_bbox_1_unscaled:
0.0492 (0.0662) loss_giou_1_unscaled: 0.0941 (0.1026)
cardinality_error_1_unscaled: 295.7500 (288.1711) loss_ce_enc_unscaled: 0.6523
(0.7339) loss_bbox_enc_unscaled: 0.0946 (0.1060) loss_giou_enc_unscaled:
0.1432 (0.1588) cardinality_error_enc_unscaled: 296.5000 (264.2303) time:
0.2987 data: 0.0452 max mem: 9284
Test: Total time: 0:00:11 (0.3115 s / it)
Averaged stats: class_error: 0.00 loss: 4.4047 (4.8483) loss_ce: 0.4492
(0.4909) loss_bbox: 0.2543 (0.3330) loss_giou: 0.1879 (0.2079) loss_ce_0:
0.5898 (0.6127) loss_bbox_0: 0.2281 (0.3492) loss_giou_0: 0.1840 (0.2162)
loss_ce_1: 0.4531 (0.5205) loss_bbox_1: 0.2462 (0.3311) loss_giou_1: 0.1881
(0.2051) loss_ce_enc: 0.6523 (0.7339) loss_bbox_enc: 0.4728 (0.5302)
loss_giou_enc: 0.2863 (0.3176) loss_ce_unscaled: 0.4492 (0.4909)
class_error_unscaled: 0.0000 (3.5777) loss_bbox_unscaled: 0.0509 (0.0666)
loss_giou_unscaled: 0.0940 (0.1040) cardinality_error_unscaled: 297.2500
(291.8224) loss_ce_0_unscaled: 0.5898 (0.6127) loss_bbox_0_unscaled: 0.0456
(0.0698) loss_giou_0_unscaled: 0.0920 (0.1081) cardinality_error_0_unscaled:
293.5000 (267.2303) loss_ce_1_unscaled: 0.4531 (0.5205) loss_bbox_1_unscaled:
0.0492 (0.0662) loss_giou_1_unscaled: 0.0941 (0.1026)
cardinality_error_1_unscaled: 295.7500 (288.1711) loss_ce_enc_unscaled: 0.6523
(0.7339) loss_bbox_enc_unscaled: 0.0946 (0.1060) loss_giou_enc_unscaled:
0.1432 (0.1588) cardinality_error_enc_unscaled: 296.5000 (264.2303)
Accumulating evaluation results…

```
DONE (t=0.36s).
IoU metric: bbox
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.780
 Average Precision  (AP) @[ IoU=0.50      | area=   all | maxDets=100 ] = 0.944
 Average Precision  (AP) @[ IoU=0.75      | area=   all | maxDets=100 ] = 0.862
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.313
 Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.791
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.634
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.850
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.873
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
 Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.537
 Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.880
Test:  [ 0/38]  eta: 0:00:34  class_error: 0.00  loss: 3.9431 (3.9431)  loss_ce:
0.2812 (0.2812)  loss_bbox: 0.2292 (0.2292)  loss_giou: 0.1408 (0.1408)
loss_ce_0: 0.3691 (0.3691)  loss_bbox_0: 0.2446 (0.2446)  loss_giou_0: 0.1422
(0.1422)  loss_ce_1: 0.2949 (0.2949)  loss_bbox_1: 0.2644 (0.2644)  loss_giou_1:
0.1519 (0.1519)  loss_ce_enc: 0.6367 (0.6367)  loss_bbox_enc: 0.8263 (0.8263)
loss_giou_enc: 0.3616 (0.3616)  loss_ce_unscaled: 0.2812 (0.2812)
class_error_unscaled: 0.0000 (0.0000)  loss_bbox_unscaled: 0.0458 (0.0458)
loss_giou_unscaled: 0.0704 (0.0704)  cardinality_error_unscaled: 286.7500
(286.7500)  loss_ce_0_unscaled: 0.3691 (0.3691)  loss_bbox_0_unscaled: 0.0489
(0.0489)  loss_giou_0_unscaled: 0.0711 (0.0711)  cardinality_error_0_unscaled:
206.0000 (206.0000)  loss_ce_1_unscaled: 0.2949 (0.2949)  loss_bbox_1_unscaled:
0.0529 (0.0529)  loss_giou_1_unscaled: 0.0759 (0.0759)
cardinality_error_1_unscaled: 266.0000 (266.0000)  loss_ce_enc_unscaled: 0.6367
(0.6367)  loss_bbox_enc_unscaled: 0.1653 (0.1653)  loss_giou_enc_unscaled:
0.1808 (0.1808)  cardinality_error_enc_unscaled: 222.7500 (222.7500)  time:
0.9187  data: 0.4613  max mem: 9284
Test:  [10/38]  eta: 0:00:10  class_error: 14.29  loss: 4.4452 (4.9454)
loss_ce: 0.5234 (0.4971)  loss_bbox: 0.2791 (0.3531)  loss_giou: 0.1977 (0.2171)
loss_ce_0: 0.6406 (0.6344)  loss_bbox_0: 0.2450 (0.3061)  loss_giou_0: 0.1534
(0.2022)  loss_ce_1: 0.5742 (0.5441)  loss_bbox_1: 0.2835 (0.3267)  loss_giou_1:
0.1974 (0.2083)  loss_ce_enc: 0.8203 (0.7781)  loss_bbox_enc: 0.5089 (0.5566)
loss_giou_enc: 0.2946 (0.3217)  loss_ce_unscaled: 0.5234 (0.4971)
class_error_unscaled: 0.0000 (5.6169)  loss_bbox_unscaled: 0.0558 (0.0706)
loss_giou_unscaled: 0.0988 (0.1085)  cardinality_error_unscaled: 286.7500
(285.2727)  loss_ce_0_unscaled: 0.6406 (0.6344)  loss_bbox_0_unscaled: 0.0490
(0.0612)  loss_giou_0_unscaled: 0.0767 (0.1011)  cardinality_error_0_unscaled:
245.0000 (254.2727)  loss_ce_1_unscaled: 0.5742 (0.5441)  loss_bbox_1_unscaled:
0.0567 (0.0653)  loss_giou_1_unscaled: 0.0987 (0.1041)
cardinality_error_1_unscaled: 277.2500 (276.8636)  loss_ce_enc_unscaled: 0.8203
(0.7781)  loss_bbox_enc_unscaled: 0.1018 (0.1113)  loss_giou_enc_unscaled:
0.1473 (0.1609)  cardinality_error_enc_unscaled: 232.5000 (256.2500)  time:
0.3592  data: 0.0585  max mem: 9284
Test:  [20/38]  eta: 0:00:05  class_error: 0.00  loss: 4.4389 (4.5821)  loss_ce:
0.4473 (0.4634)  loss_bbox: 0.2791 (0.3239)  loss_giou: 0.1680 (0.1930)
```

loss_ce_0: 0.5703 (0.5698) loss_bbox_0: 0.2450 (0.3222) loss_giou_0: 0.1534 (0.1951) loss_ce_1: 0.4414 (0.4793) loss_bbox_1: 0.2835 (0.3359) loss_giou_1: 0.1829 (0.1986) loss_ce_enc: 0.7188 (0.7176) loss_bbox_enc: 0.4343 (0.4969) loss_giou_enc: 0.2623 (0.2863) loss_ce_unscaled: 0.4473 (0.4634) class_error_unscaled: 0.0000 (5.0057) loss_bbox_unscaled: 0.0558 (0.0648) loss_giou_unscaled: 0.0840 (0.0965) cardinality_error_unscaled: 281.2500 (282.2738) loss_ce_0_unscaled: 0.5703 (0.5698) loss_bbox_0_unscaled: 0.0490 (0.0644) loss_giou_0_unscaled: 0.0767 (0.0976) cardinality_error_0_unscaled: 245.0000 (246.8214) loss_ce_1_unscaled: 0.4414 (0.4793) loss_bbox_1_unscaled: 0.0567 (0.0672) loss_giou_1_unscaled: 0.0915 (0.0993) cardinality_error_1_unscaled: 277.2500 (273.0357) loss_ce_enc_unscaled: 0.7188 (0.7176) loss_bbox_enc_unscaled: 0.0869 (0.0994) loss_giou_enc_unscaled: 0.1312 (0.1432) cardinality_error_enc_unscaled: 232.5000 (243.7024) time: 0.2967 data: 0.0182 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.7156 (4.3625) loss_ce: 0.3984 (0.4446) loss_bbox: 0.2179 (0.2869) loss_giou: 0.1345 (0.1840) loss_ce_0: 0.4902 (0.5565) loss_bbox_0: 0.2242 (0.2999) loss_giou_0: 0.1464 (0.1907) loss_ce_1: 0.3926 (0.4595) loss_bbox_1: 0.2205 (0.3022) loss_giou_1: 0.1415 (0.1908) loss_ce_enc: 0.6328 (0.6912) loss_bbox_enc: 0.4020 (0.4738) loss_giou_enc: 0.2419 (0.2824) loss_ce_unscaled: 0.3984 (0.4446) class_error_unscaled: 0.0000 (4.0361) loss_bbox_unscaled: 0.0436 (0.0574) loss_giou_unscaled: 0.0673 (0.0920) cardinality_error_unscaled: 295.7500 (285.0806) loss_ce_0_unscaled: 0.4902 (0.5565) loss_bbox_0_unscaled: 0.0448 (0.0600) loss_giou_0_unscaled: 0.0732 (0.0954) cardinality_error_0_unscaled: 285.5000 (256.2016) loss_ce_1_unscaled: 0.3926 (0.4595) loss_bbox_1_unscaled: 0.0441 (0.0604) loss_giou_1_unscaled: 0.0708 (0.0954) cardinality_error_1_unscaled: 292.7500 (277.0081) loss_ce_enc_unscaled: 0.6328 (0.6912) loss_bbox_enc_unscaled: 0.0804 (0.0948) loss_giou_enc_unscaled: 0.1210 (0.1412) cardinality_error_enc_unscaled: 275.2500 (255.2823) time: 0.2906 data: 0.0181 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 3.9197 (4.4272) loss_ce: 0.3867 (0.4436) loss_bbox: 0.2311 (0.2942) loss_giou: 0.1818 (0.1927) loss_ce_0: 0.5312 (0.5549) loss_bbox_0: 0.2572 (0.3089) loss_giou_0: 0.1829 (0.1985) loss_ce_1: 0.3770 (0.4557) loss_bbox_1: 0.2461 (0.3078) loss_giou_1: 0.1853 (0.1989) loss_ce_enc: 0.6250 (0.6868) loss_bbox_enc: 0.4291 (0.4918) loss_giou_enc: 0.2881 (0.2937) loss_ce_unscaled: 0.3867 (0.4436) class_error_unscaled: 0.0000 (3.2926) loss_bbox_unscaled: 0.0462 (0.0588) loss_giou_unscaled: 0.0909 (0.0963) cardinality_error_unscaled: 297.0000 (287.2500) loss_ce_0_unscaled: 0.5312 (0.5549) loss_bbox_0_unscaled: 0.0514 (0.0618) loss_giou_0_unscaled: 0.0915 (0.0993) cardinality_error_0_unscaled: 286.7500 (262.2697) loss_ce_1_unscaled: 0.3770 (0.4557) loss_bbox_1_unscaled: 0.0492 (0.0616) loss_giou_1_unscaled: 0.0926 (0.0994) cardinality_error_1_unscaled: 293.7500 (280.3618) loss_ce_enc_unscaled: 0.6250 (0.6868) loss_bbox_enc_unscaled: 0.0858 (0.0984) loss_giou_enc_unscaled: 0.1440 (0.1468) cardinality_error_enc_unscaled: 295.2500 (261.6776) time: 0.2830 data: 0.0172 max mem: 9284
Test: Total time: 0:00:11 (0.3089 s / it)
Averaged stats: class_error: 0.00 loss: 3.9197 (4.4272) loss_ce: 0.3867

(0.4436) loss_bbox: 0.2311 (0.2942) loss_giou: 0.1818 (0.1927) loss_ce_0:
0.5312 (0.5549) loss_bbox_0: 0.2572 (0.3089) loss_giou_0: 0.1829 (0.1985)
loss_ce_1: 0.3770 (0.4557) loss_bbox_1: 0.2461 (0.3078) loss_giou_1: 0.1853
(0.1989) loss_ce_enc: 0.6250 (0.6868) loss_bbox_enc: 0.4291 (0.4918)
loss_giou_enc: 0.2881 (0.2937) loss_ce_unscaled: 0.3867 (0.4436)
class_error_unscaled: 0.0000 (3.2926) loss_bbox_unscaled: 0.0462 (0.0588)
loss_giou_unscaled: 0.0909 (0.0963) cardinality_error_unscaled: 297.0000
(287.2500) loss_ce_0_unscaled: 0.5312 (0.5549) loss_bbox_0_unscaled: 0.0514
(0.0618) loss_giou_0_unscaled: 0.0915 (0.0993) cardinality_error_0_unscaled:
286.7500 (262.2697) loss_ce_1_unscaled: 0.3770 (0.4557) loss_bbox_1_unscaled:
0.0492 (0.0616) loss_giou_1_unscaled: 0.0926 (0.0994)
cardinality_error_1_unscaled: 293.7500 (280.3618) loss_ce_enc_unscaled: 0.6250
(0.6868) loss_bbox_enc_unscaled: 0.0858 (0.0984) loss_giou_enc_unscaled:
0.1440 (0.1468) cardinality_error_enc_unscaled: 295.2500 (261.6776)
Accumulating evaluation results…
DONE (t=0.29s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.808
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.953
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.880
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.344
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.818
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.641
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.870
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.894
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.595
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.900
Grad accum steps: 4
Total batch size: 16
LENGTH OF DATA LOADER: 87
Epoch: [14] [0/87] eta: 0:13:28 lr: 0.000100 class_error: 0.00 loss:
3.5417 (3.5417) loss_ce: 0.3763 (0.3763) loss_bbox: 0.1858 (0.1858)
loss_giou: 0.0859 (0.0859) loss_ce_0: 0.4886 (0.4886) loss_bbox_0: 0.1634
(0.1634) loss_giou_0: 0.0816 (0.0816) loss_ce_1: 0.4283 (0.4283) loss_bbox_1:
0.1836 (0.1836) loss_giou_1: 0.0858 (0.0858) loss_ce_enc: 0.7362 (0.7362)
loss_bbox_enc: 0.5218 (0.5218) loss_giou_enc: 0.2043 (0.2043)
loss_ce_unscaled: 0.3763 (0.3763) class_error_unscaled: 0.0000 (0.0000)
loss_bbox_unscaled: 0.0372 (0.0372) loss_giou_unscaled: 0.0430 (0.0430)
cardinality_error_unscaled: 3629.5000 (3629.5000) loss_ce_0_unscaled: 0.4886
(0.4886) loss_bbox_0_unscaled: 0.0327 (0.0327) loss_giou_0_unscaled: 0.0408
(0.0408) cardinality_error_0_unscaled: 2948.2500 (2948.2500)
loss_ce_1_unscaled: 0.4283 (0.4283) loss_bbox_1_unscaled: 0.0367 (0.0367)
loss_giou_1_unscaled: 0.0429 (0.0429) cardinality_error_1_unscaled: 3460.5000
(3460.5000) loss_ce_enc_unscaled: 0.7362 (0.7362) loss_bbox_enc_unscaled:
0.1044 (0.1044) loss_giou_enc_unscaled: 0.1021 (0.1021)
cardinality_error_enc_unscaled: 2917.5000 (2917.5000) time: 9.2899 data:

1.7556 max mem: 9284
Epoch: [14] [10/87] eta: 0:09:20 lr: 0.000100 class_error: 3.50 loss:
4.0975 (4.2540) loss_ce: 0.3509 (0.3666) loss_bbox: 0.3050 (0.3036)
loss_giou: 0.1670 (0.1755) loss_ce_0: 0.5100 (0.5113) loss_bbox_0: 0.2966
(0.3163) loss_giou_0: 0.1788 (0.1803) loss_ce_1: 0.3787 (0.3940) loss_bbox_1:
0.3133 (0.3190) loss_giou_1: 0.1763 (0.1817) loss_ce_enc: 0.6259 (0.6660)
loss_bbox_enc: 0.5520 (0.5469) loss_giou_enc: 0.2928 (0.2928)
loss_ce_unscaled: 0.3509 (0.3666) class_error_unscaled: 0.0000 (0.3179)
loss_bbox_unscaled: 0.0610 (0.0607) loss_giou_unscaled: 0.0835 (0.0877)
cardinality_error_unscaled: 3889.2500 (3804.1364) loss_ce_0_unscaled: 0.5100
(0.5113) loss_bbox_0_unscaled: 0.0593 (0.0633) loss_giou_0_unscaled: 0.0894
(0.0902) cardinality_error_0_unscaled: 3797.5000 (3525.1136)
loss_ce_1_unscaled: 0.3787 (0.3940) loss_bbox_1_unscaled: 0.0627 (0.0638)
loss_giou_1_unscaled: 0.0881 (0.0908) cardinality_error_1_unscaled: 3864.5000
(3720.2955) loss_ce_enc_unscaled: 0.6259 (0.6660) loss_bbox_enc_unscaled:
0.1104 (0.1094) loss_giou_enc_unscaled: 0.1464 (0.1464)
cardinality_error_enc_unscaled: 3816.0000 (3480.1591) time: 7.2853 data:
0.1992 max mem: 9284
Epoch: [14] [20/87] eta: 0:08:06 lr: 0.000100 class_error: 0.00 loss:
3.9261 (3.9320) loss_ce: 0.3285 (0.3299) loss_bbox: 0.2548 (0.2881)
loss_giou: 0.1592 (0.1634) loss_ce_0: 0.4453 (0.4753) loss_bbox_0: 0.2808
(0.2896) loss_giou_0: 0.1587 (0.1692) loss_ce_1: 0.3547 (0.3608) loss_bbox_1:
0.2843 (0.2881) loss_giou_1: 0.1534 (0.1646) loss_ce_enc: 0.5753 (0.6354)
loss_bbox_enc: 0.5029 (0.4976) loss_giou_enc: 0.2756 (0.2701)
loss_ce_unscaled: 0.3285 (0.3299) class_error_unscaled: 0.0000 (0.1665)
loss_bbox_unscaled: 0.0510 (0.0576) loss_giou_unscaled: 0.0796 (0.0817)
cardinality_error_unscaled: 3886.0000 (3805.9762) loss_ce_0_unscaled: 0.4453
(0.4753) loss_bbox_0_unscaled: 0.0562 (0.0579) loss_giou_0_unscaled: 0.0794
(0.0846) cardinality_error_0_unscaled: 3797.5000 (3546.1905)
loss_ce_1_unscaled: 0.3547 (0.3608) loss_bbox_1_unscaled: 0.0569 (0.0576)
loss_giou_1_unscaled: 0.0767 (0.0823) cardinality_error_1_unscaled: 3853.2500
(3744.2143) loss_ce_enc_unscaled: 0.5753 (0.6354) loss_bbox_enc_unscaled:
0.1006 (0.0995) loss_giou_enc_unscaled: 0.1378 (0.1350)
cardinality_error_enc_unscaled: 3816.0000 (3515.2381) time: 7.1632 data:
0.0473 max mem: 9284
Epoch: [14] [30/87] eta: 0:06:49 lr: 0.000100 class_error: 0.00 loss:
3.4641 (3.9082) loss_ce: 0.2812 (0.3279) loss_bbox: 0.2344 (0.2794)
loss_giou: 0.1282 (0.1647) loss_ce_0: 0.4438 (0.4690) loss_bbox_0: 0.2383
(0.2886) loss_giou_0: 0.1405 (0.1720) loss_ce_1: 0.2991 (0.3504) loss_bbox_1:
0.2396 (0.2798) loss_giou_1: 0.1321 (0.1650) loss_ce_enc: 0.6170 (0.6465)
loss_bbox_enc: 0.4591 (0.4925) loss_giou_enc: 0.2497 (0.2722)
loss_ce_unscaled: 0.2812 (0.3279) class_error_unscaled: 0.0000 (0.4106)
loss_bbox_unscaled: 0.0469 (0.0559) loss_giou_unscaled: 0.0641 (0.0824)
cardinality_error_unscaled: 3871.0000 (3778.8226) loss_ce_0_unscaled: 0.4438
(0.4690) loss_bbox_0_unscaled: 0.0477 (0.0577) loss_giou_0_unscaled: 0.0703
(0.0860) cardinality_error_0_unscaled: 3520.7500 (3440.6290)
loss_ce_1_unscaled: 0.2991 (0.3504) loss_bbox_1_unscaled: 0.0479 (0.0560)
loss_giou_1_unscaled: 0.0661 (0.0825) cardinality_error_1_unscaled: 3828.7500

(3708.5726) loss_ce_enc_unscaled: 0.6170 (0.6465) loss_bbox_enc_unscaled: 0.0918 (0.0985) loss_giou_enc_unscaled: 0.1249 (0.1361)
cardinality_error_enc_unscaled: 3565.2500 (3402.4839) time: 7.1188 data: 0.0495 max mem: 9284
Epoch: [14] [40/87] eta: 0:05:33 lr: 0.000100 class_error: 0.00 loss: 3.7202 (3.9121) loss_ce: 0.2944 (0.3326) loss_bbox: 0.2101 (0.2787)
loss_giou: 0.1295 (0.1686) loss_ce_0: 0.4044 (0.4651) loss_bbox_0: 0.2349 (0.2907) loss_giou_0: 0.1546 (0.1756) loss_ce_1: 0.2991 (0.3544) loss_bbox_1: 0.2332 (0.2809) loss_giou_1: 0.1330 (0.1692) loss_ce_enc: 0.6186 (0.6398)
loss_bbox_enc: 0.4422 (0.4817) loss_giou_enc: 0.2591 (0.2748)
loss_ce_unscaled: 0.2944 (0.3326) class_error_unscaled: 0.0000 (0.5736)
loss_bbox_unscaled: 0.0420 (0.0557) loss_giou_unscaled: 0.0647 (0.0843)
cardinality_error_unscaled: 3871.0000 (3789.6646) loss_ce_0_unscaled: 0.4044 (0.4651) loss_bbox_0_unscaled: 0.0470 (0.0581) loss_giou_0_unscaled: 0.0773 (0.0878) cardinality_error_0_unscaled: 3520.7500 (3471.5732)
loss_ce_1_unscaled: 0.2991 (0.3544) loss_bbox_1_unscaled: 0.0466 (0.0562)
loss_giou_1_unscaled: 0.0665 (0.0846) cardinality_error_1_unscaled: 3832.7500 (3722.4634) loss_ce_enc_unscaled: 0.6186 (0.6398) loss_bbox_enc_unscaled: 0.0884 (0.0963) loss_giou_enc_unscaled: 0.1295 (0.1374)
cardinality_error_enc_unscaled: 3565.2500 (3433.9512) time: 6.8998 data: 0.0489 max mem: 9284
Epoch: [14] [50/87] eta: 0:04:22 lr: 0.000100 class_error: 4.40 loss: 3.5521 (3.9666) loss_ce: 0.3304 (0.3428) loss_bbox: 0.2288 (0.2819)
loss_giou: 0.1626 (0.1709) loss_ce_0: 0.4691 (0.4742) loss_bbox_0: 0.2223 (0.2986) loss_giou_0: 0.1636 (0.1792) loss_ce_1: 0.3559 (0.3648) loss_bbox_1: 0.2444 (0.2844) loss_giou_1: 0.1693 (0.1716) loss_ce_enc: 0.5229 (0.6351)
loss_bbox_enc: 0.4509 (0.4868) loss_giou_enc: 0.2657 (0.2764)
loss_ce_unscaled: 0.3304 (0.3428) class_error_unscaled: 0.0000 (0.5473)
loss_bbox_unscaled: 0.0458 (0.0564) loss_giou_unscaled: 0.0813 (0.0854)
cardinality_error_unscaled: 3882.0000 (3779.5441) loss_ce_0_unscaled: 0.4691 (0.4742) loss_bbox_0_unscaled: 0.0445 (0.0597) loss_giou_0_unscaled: 0.0818 (0.0896) cardinality_error_0_unscaled: 3836.2500 (3436.2206)
loss_ce_1_unscaled: 0.3559 (0.3648) loss_bbox_1_unscaled: 0.0489 (0.0569)
loss_giou_1_unscaled: 0.0846 (0.0858) cardinality_error_1_unscaled: 3876.7500 (3712.7206) loss_ce_enc_unscaled: 0.5229 (0.6351) loss_bbox_enc_unscaled: 0.0902 (0.0974) loss_giou_enc_unscaled: 0.1329 (0.1382)
cardinality_error_enc_unscaled: 3771.2500 (3389.5196) time: 6.9965 data: 0.0493 max mem: 9284
Epoch: [14] [60/87] eta: 0:03:11 lr: 0.000100 class_error: 0.00 loss: 3.5521 (3.9195) loss_ce: 0.3007 (0.3335) loss_bbox: 0.2486 (0.2849)
loss_giou: 0.1437 (0.1655) loss_ce_0: 0.4258 (0.4675) loss_bbox_0: 0.2655 (0.3004) loss_giou_0: 0.1479 (0.1728) loss_ce_1: 0.3035 (0.3573) loss_bbox_1: 0.2571 (0.2875) loss_giou_1: 0.1449 (0.1664) loss_ce_enc: 0.5407 (0.6250)
loss_bbox_enc: 0.5078 (0.4886) loss_giou_enc: 0.2600 (0.2700)
loss_ce_unscaled: 0.3007 (0.3335) class_error_unscaled: 0.0000 (0.4576)
loss_bbox_unscaled: 0.0497 (0.0570) loss_giou_unscaled: 0.0718 (0.0828)
cardinality_error_unscaled: 3884.0000 (3793.9180) loss_ce_0_unscaled: 0.4258 (0.4675) loss_bbox_0_unscaled: 0.0531 (0.0601) loss_giou_0_unscaled: 0.0739

(0.0864) cardinality_error_0_unscaled: 3836.2500 (3486.6516)
loss_ce_1_unscaled: 0.3035 (0.3573) loss_bbox_1_unscaled: 0.0514 (0.0575)
loss_giou_1_unscaled: 0.0725 (0.0832) cardinality_error_1_unscaled: 3876.0000
(3734.0369) loss_ce_enc_unscaled: 0.5407 (0.6250) loss_bbox_enc_unscaled:
0.1016 (0.0977) loss_giou_enc_unscaled: 0.1300 (0.1350)
cardinality_error_enc_unscaled: 3790.7500 (3446.3730) time: 7.0842 data:
0.0487 max mem: 9284
Epoch: [14] [70/87] eta: 0:02:00 lr: 0.000100 class_error: 0.00 loss:
3.6132 (3.9236) loss_ce: 0.2752 (0.3317) loss_bbox: 0.2738 (0.2862)
loss_giou: 0.1386 (0.1638) loss_ce_0: 0.4258 (0.4685) loss_bbox_0: 0.2783
(0.2997) loss_giou_0: 0.1407 (0.1700) loss_ce_1: 0.2830 (0.3566) loss_bbox_1:
0.2635 (0.2893) loss_giou_1: 0.1380 (0.1649) loss_ce_enc: 0.5648 (0.6257)
loss_bbox_enc: 0.5078 (0.4961) loss_giou_enc: 0.2588 (0.2710)
loss_ce_unscaled: 0.2752 (0.3317) class_error_unscaled: 0.0000 (0.3931)
loss_bbox_unscaled: 0.0548 (0.0572) loss_giou_unscaled: 0.0693 (0.0819)
cardinality_error_unscaled: 3890.7500 (3803.3908) loss_ce_0_unscaled: 0.4258
(0.4685) loss_bbox_0_unscaled: 0.0557 (0.0599) loss_giou_0_unscaled: 0.0703
(0.0850) cardinality_error_0_unscaled: 3845.2500 (3519.9401)
loss_ce_1_unscaled: 0.2830 (0.3566) loss_bbox_1_unscaled: 0.0527 (0.0579)
loss_giou_1_unscaled: 0.0690 (0.0824) cardinality_error_1_unscaled: 3879.7500
(3743.2254) loss_ce_enc_unscaled: 0.5648 (0.6257) loss_bbox_enc_unscaled:
0.1016 (0.0992) loss_giou_enc_unscaled: 0.1294 (0.1355)
cardinality_error_enc_unscaled: 3820.5000 (3473.5986) time: 6.9834 data:
0.0492 max mem: 9284
Epoch: [14] [80/87] eta: 0:00:49 lr: 0.000100 class_error: 16.67 loss:
3.4579 (3.8737) loss_ce: 0.2903 (0.3311) loss_bbox: 0.2344 (0.2776)
loss_giou: 0.1383 (0.1593) loss_ce_0: 0.4516 (0.4640) loss_bbox_0: 0.2544
(0.2926) loss_giou_0: 0.1407 (0.1662) loss_ce_1: 0.3154 (0.3535) loss_bbox_1:
0.2425 (0.2814) loss_giou_1: 0.1376 (0.1605) loss_ce_enc: 0.6220 (0.6199)
loss_bbox_enc: 0.4988 (0.4968) loss_giou_enc: 0.2694 (0.2709)
loss_ce_unscaled: 0.2903 (0.3311) class_error_unscaled: 0.0000 (0.5504)
loss_bbox_unscaled: 0.0469 (0.0555) loss_giou_unscaled: 0.0691 (0.0796)
cardinality_error_unscaled: 3889.0000 (3798.6142) loss_ce_0_unscaled: 0.4516
(0.4640) loss_bbox_0_unscaled: 0.0509 (0.0585) loss_giou_0_unscaled: 0.0703
(0.0831) cardinality_error_0_unscaled: 3853.0000 (3509.7500)
loss_ce_1_unscaled: 0.3154 (0.3535) loss_bbox_1_unscaled: 0.0485 (0.0563)
loss_giou_1_unscaled: 0.0688 (0.0802) cardinality_error_1_unscaled: 3879.7500
(3739.8549) loss_ce_enc_unscaled: 0.6220 (0.6199) loss_bbox_enc_unscaled:
0.0998 (0.0994) loss_giou_enc_unscaled: 0.1347 (0.1355)
cardinality_error_enc_unscaled: 3829.7500 (3461.5648) time: 6.9782 data:
0.0491 max mem: 9284
Epoch: [14] [86/87] eta: 0:00:07 lr: 0.000100 class_error: 0.00 loss:
3.6550 (3.8742) loss_ce: 0.3111 (0.3342) loss_bbox: 0.2160 (0.2750)
loss_giou: 0.1300 (0.1592) loss_ce_0: 0.4516 (0.4631) loss_bbox_0: 0.2448
(0.2900) loss_giou_0: 0.1379 (0.1660) loss_ce_1: 0.3165 (0.3554) loss_bbox_1:
0.2263 (0.2793) loss_giou_1: 0.1376 (0.1606) loss_ce_enc: 0.5968 (0.6162)
loss_bbox_enc: 0.5086 (0.5022) loss_giou_enc: 0.2806 (0.2728)
loss_ce_unscaled: 0.3111 (0.3342) class_error_unscaled: 0.0000 (0.5124)

loss_bbox_unscaled: 0.0432 (0.0550) loss_giou_unscaled: 0.0650 (0.0796)
cardinality_error_unscaled: 3884.2500 (3802.3937) loss_ce_0_unscaled: 0.4516
(0.4631) loss_bbox_0_unscaled: 0.0490 (0.0580) loss_giou_0_unscaled: 0.0690
(0.0830) cardinality_error_0_unscaled: 3853.0000 (3522.6580)
loss_ce_1_unscaled: 0.3165 (0.3554) loss_bbox_1_unscaled: 0.0453 (0.0559)
loss_giou_1_unscaled: 0.0688 (0.0803) cardinality_error_1_unscaled: 3879.7500
(3748.1552) loss_ce_enc_unscaled: 0.5968 (0.6162) loss_bbox_enc_unscaled:
0.1017 (0.1004) loss_giou_enc_unscaled: 0.1403 (0.1364)
cardinality_error_enc_unscaled: 3749.2500 (3470.2328) time: 6.9236 data:
0.0487 max mem: 9284
Epoch: [14] Total time: 0:10:12 (7.0456 s / it)
Averaged stats: lr: 0.000100 class_error: 0.00 loss: 3.6550 (3.8742) loss_ce:
0.3111 (0.3342) loss_bbox: 0.2160 (0.2750) loss_giou: 0.1300 (0.1592)
loss_ce_0: 0.4516 (0.4631) loss_bbox_0: 0.2448 (0.2900) loss_giou_0: 0.1379
(0.1660) loss_ce_1: 0.3165 (0.3554) loss_bbox_1: 0.2263 (0.2793) loss_giou_1:
0.1376 (0.1606) loss_ce_enc: 0.5968 (0.6162) loss_bbox_enc: 0.5086 (0.5022)
loss_giou_enc: 0.2806 (0.2728) loss_ce_unscaled: 0.3111 (0.3342)
class_error_unscaled: 0.0000 (0.5124) loss_bbox_unscaled: 0.0432 (0.0550)
loss_giou_unscaled: 0.0650 (0.0796) cardinality_error_unscaled: 3884.2500
(3802.3937) loss_ce_0_unscaled: 0.4516 (0.4631) loss_bbox_0_unscaled: 0.0490
(0.0580) loss_giou_0_unscaled: 0.0690 (0.0830) cardinality_error_0_unscaled:
3853.0000 (3522.6580) loss_ce_1_unscaled: 0.3165 (0.3554)
loss_bbox_1_unscaled: 0.0453 (0.0559) loss_giou_1_unscaled: 0.0688 (0.0803)
cardinality_error_1_unscaled: 3879.7500 (3748.1552) loss_ce_enc_unscaled:
0.5968 (0.6162) loss_bbox_enc_unscaled: 0.1017 (0.1004)
loss_giou_enc_unscaled: 0.1403 (0.1364) cardinality_error_enc_unscaled:
3749.2500 (3470.2328)
Test: [0/38] eta: 0:00:26 class_error: 0.00 loss: 3.9071 (3.9071) loss_ce:
0.2930 (0.2930) loss_bbox: 0.1842 (0.1842) loss_giou: 0.1210 (0.1210)
loss_ce_0: 0.3887 (0.3887) loss_bbox_0: 0.2856 (0.2856) loss_giou_0: 0.1519
(0.1519) loss_ce_1: 0.3555 (0.3555) loss_bbox_1: 0.2124 (0.2124) loss_giou_1:
0.1384 (0.1384) loss_ce_enc: 0.6523 (0.6523) loss_bbox_enc: 0.7714 (0.7714)
loss_giou_enc: 0.3528 (0.3528) loss_ce_unscaled: 0.2930 (0.2930)
class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0368 (0.0368)
loss_giou_unscaled: 0.0605 (0.0605) cardinality_error_unscaled: 290.0000
(290.0000) loss_ce_0_unscaled: 0.3887 (0.3887) loss_bbox_0_unscaled: 0.0571
(0.0571) loss_giou_0_unscaled: 0.0759 (0.0759) cardinality_error_0_unscaled:
219.7500 (219.7500) loss_ce_1_unscaled: 0.3555 (0.3555) loss_bbox_1_unscaled:
0.0425 (0.0425) loss_giou_1_unscaled: 0.0692 (0.0692)
cardinality_error_1_unscaled: 283.2500 (283.2500) loss_ce_enc_unscaled: 0.6523
(0.6523) loss_bbox_enc_unscaled: 0.1543 (0.1543) loss_giou_enc_unscaled:
0.1764 (0.1764) cardinality_error_enc_unscaled: 223.0000 (223.0000) time:
0.6878 data: 0.3165 max mem: 9284
Test: [10/38] eta: 0:00:09 class_error: 0.00 loss: 5.6369 (5.5730) loss_ce:
0.6836 (0.6096) loss_bbox: 0.3387 (0.3586) loss_giou: 0.2388 (0.2257)
loss_ce_0: 0.7188 (0.6610) loss_bbox_0: 0.3831 (0.4191) loss_giou_0: 0.2385
(0.2469) loss_ce_1: 0.7227 (0.6053) loss_bbox_1: 0.3440 (0.3806) loss_giou_1:
0.2413 (0.2350) loss_ce_enc: 0.8125 (0.7717) loss_bbox_enc: 0.6731 (0.6740)

loss_giou_enc: 0.3801 (0.3857) loss_ce_unscaled: 0.6836 (0.6096)
class_error_unscaled: 0.0000 (4.0909) loss_bbox_unscaled: 0.0677 (0.0717)
loss_giou_unscaled: 0.1194 (0.1128) cardinality_error_unscaled: 294.0000
(290.2727) loss_ce_0_unscaled: 0.7188 (0.6610) loss_bbox_0_unscaled: 0.0766
(0.0838) loss_giou_0_unscaled: 0.1193 (0.1234) cardinality_error_0_unscaled:
275.7500 (264.0455) loss_ce_1_unscaled: 0.7227 (0.6053) loss_bbox_1_unscaled:
0.0688 (0.0761) loss_giou_1_unscaled: 0.1207 (0.1175)
cardinality_error_1_unscaled: 294.0000 (286.6591) loss_ce_enc_unscaled: 0.8125
(0.7717) loss_bbox_enc_unscaled: 0.1346 (0.1348) loss_giou_enc_unscaled:
0.1901 (0.1928) cardinality_error_enc_unscaled: 248.2500 (258.9545) time:
0.3276 data: 0.0466 max mem: 9284
Test: [20/38] eta: 0:00:05 class_error: 0.00 loss: 5.4815 (5.3441) loss_ce:
0.6055 (0.5588) loss_bbox: 0.3624 (0.3877) loss_giou: 0.2297 (0.2254)
loss_ce_0: 0.5898 (0.6017) loss_bbox_0: 0.3728 (0.4212) loss_giou_0: 0.2196
(0.2343) loss_ce_1: 0.6523 (0.5542) loss_bbox_1: 0.3440 (0.3834) loss_giou_1:
0.2226 (0.2252) loss_ce_enc: 0.7422 (0.7201) loss_bbox_enc: 0.6077 (0.6604)
loss_giou_enc: 0.3792 (0.3717) loss_ce_unscaled: 0.6055 (0.5588)
class_error_unscaled: 0.0000 (4.2063) loss_bbox_unscaled: 0.0725 (0.0775)
loss_giou_unscaled: 0.1148 (0.1127) cardinality_error_unscaled: 294.0000
(286.1071) loss_ce_0_unscaled: 0.5898 (0.6017) loss_bbox_0_unscaled: 0.0746
(0.0842) loss_giou_0_unscaled: 0.1098 (0.1171) cardinality_error_0_unscaled:
275.7500 (256.0357) loss_ce_1_unscaled: 0.6523 (0.5542) loss_bbox_1_unscaled:
0.0688 (0.0767) loss_giou_1_unscaled: 0.1113 (0.1126)
cardinality_error_1_unscaled: 292.2500 (284.7857) loss_ce_enc_unscaled: 0.7422
(0.7201) loss_bbox_enc_unscaled: 0.1215 (0.1321) loss_giou_enc_unscaled:
0.1896 (0.1859) cardinality_error_enc_unscaled: 248.2500 (245.0714) time:
0.2922 data: 0.0208 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 22.22 loss: 4.7152 (5.1028)
loss_ce: 0.4766 (0.5224) loss_bbox: 0.2865 (0.3547) loss_giou: 0.1863 (0.2149)
loss_ce_0: 0.5664 (0.5929) loss_bbox_0: 0.3203 (0.3933) loss_giou_0: 0.2036
(0.2273) loss_ce_1: 0.4844 (0.5263) loss_bbox_1: 0.3038 (0.3595) loss_giou_1:
0.1837 (0.2176) loss_ce_enc: 0.6172 (0.7000) loss_bbox_enc: 0.5800 (0.6347)
loss_giou_enc: 0.3169 (0.3592) loss_ce_unscaled: 0.4766 (0.5224)
class_error_unscaled: 0.0000 (4.5047) loss_bbox_unscaled: 0.0573 (0.0709)
loss_giou_unscaled: 0.0931 (0.1075) cardinality_error_unscaled: 297.0000
(288.4113) loss_ce_0_unscaled: 0.5664 (0.5929) loss_bbox_0_unscaled: 0.0641
(0.0787) loss_giou_0_unscaled: 0.1018 (0.1137) cardinality_error_0_unscaled:
294.2500 (264.6532) loss_ce_1_unscaled: 0.4844 (0.5263) loss_bbox_1_unscaled:
0.0608 (0.0719) loss_giou_1_unscaled: 0.0919 (0.1088)
cardinality_error_1_unscaled: 297.0000 (287.6371) loss_ce_enc_unscaled: 0.6172
(0.7000) loss_bbox_enc_unscaled: 0.1160 (0.1269) loss_giou_enc_unscaled:
0.1585 (0.1796) cardinality_error_enc_unscaled: 287.2500 (256.6532) time:
0.2851 data: 0.0199 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 4.7596 (5.2078) loss_ce:
0.4688 (0.5318) loss_bbox: 0.2756 (0.3637) loss_giou: 0.1836 (0.2289)
loss_ce_0: 0.5781 (0.6031) loss_bbox_0: 0.3372 (0.3972) loss_giou_0: 0.2055
(0.2399) loss_ce_1: 0.4746 (0.5379) loss_bbox_1: 0.3228 (0.3681) loss_giou_1:
0.1994 (0.2305) loss_ce_enc: 0.6719 (0.7066) loss_bbox_enc: 0.5645 (0.6336)

loss_giou_enc: 0.3259 (0.3665) loss_ce_unscaled: 0.4688 (0.5318)
class_error_unscaled: 0.0000 (4.2012) loss_bbox_unscaled: 0.0551 (0.0727)
loss_giou_unscaled: 0.0918 (0.1144) cardinality_error_unscaled: 297.2500
(290.0724) loss_ce_0_unscaled: 0.5781 (0.6031) loss_bbox_0_unscaled: 0.0674
(0.0794) loss_giou_0_unscaled: 0.1027 (0.1199) cardinality_error_0_unscaled:
296.0000 (270.4211) loss_ce_1_unscaled: 0.4746 (0.5379) loss_bbox_1_unscaled:
0.0646 (0.0736) loss_giou_1_unscaled: 0.0997 (0.1153)
cardinality_error_1_unscaled: 297.0000 (289.4079) loss_ce_enc_unscaled: 0.6719
(0.7066) loss_bbox_enc_unscaled: 0.1129 (0.1267) loss_giou_enc_unscaled:
0.1629 (0.1832) cardinality_error_enc_unscaled: 294.2500 (263.3092) time:
0.2715 data: 0.0172 max mem: 9284
Test: Total time: 0:00:11 (0.2954 s / it)
Averaged stats: class_error: 0.00 loss: 4.7596 (5.2078) loss_ce: 0.4688
(0.5318) loss_bbox: 0.2756 (0.3637) loss_giou: 0.1836 (0.2289) loss_ce_0:
0.5781 (0.6031) loss_bbox_0: 0.3372 (0.3972) loss_giou_0: 0.2055 (0.2399)
loss_ce_1: 0.4746 (0.5379) loss_bbox_1: 0.3228 (0.3681) loss_giou_1: 0.1994
(0.2305) loss_ce_enc: 0.6719 (0.7066) loss_bbox_enc: 0.5645 (0.6336)
loss_giou_enc: 0.3259 (0.3665) loss_ce_unscaled: 0.4688 (0.5318)
class_error_unscaled: 0.0000 (4.2012) loss_bbox_unscaled: 0.0551 (0.0727)
loss_giou_unscaled: 0.0918 (0.1144) cardinality_error_unscaled: 297.2500
(290.0724) loss_ce_0_unscaled: 0.5781 (0.6031) loss_bbox_0_unscaled: 0.0674
(0.0794) loss_giou_0_unscaled: 0.1027 (0.1199) cardinality_error_0_unscaled:
296.0000 (270.4211) loss_ce_1_unscaled: 0.4746 (0.5379) loss_bbox_1_unscaled:
0.0646 (0.0736) loss_giou_1_unscaled: 0.0997 (0.1153)
cardinality_error_1_unscaled: 297.0000 (289.4079) loss_ce_enc_unscaled: 0.6719
(0.7066) loss_bbox_enc_unscaled: 0.1129 (0.1267) loss_giou_enc_unscaled:
0.1629 (0.1832) cardinality_error_enc_unscaled: 294.2500 (263.3092)
Accumulating evaluation results…
DONE (t=0.25s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.749
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.924
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.807
 Average Precision (AP) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Precision (AP) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.307
 Average Precision (AP) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.759
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 1] = 0.607
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets= 10] = 0.837
 Average Recall   (AR) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.864
 Average Recall   (AR) @[IoU=0.50:0.95 | area= small | maxDets=100] = -1.000
 Average Recall   (AR) @[IoU=0.50:0.95 | area=medium | maxDets=100] = 0.557
 Average Recall   (AR) @[IoU=0.50:0.95 | area= large | maxDets=100] = 0.869
Test: [0/38] eta: 0:00:22 class_error: 0.00 loss: 3.6718 (3.6718) loss_ce:
0.2695 (0.2695) loss_bbox: 0.2522 (0.2522) loss_giou: 0.1420 (0.1420)
loss_ce_0: 0.3359 (0.3359) loss_bbox_0: 0.2763 (0.2763) loss_giou_0: 0.1529
(0.1529) loss_ce_1: 0.2715 (0.2715) loss_bbox_1: 0.2590 (0.2590) loss_giou_1:
0.1428 (0.1428) loss_ce_enc: 0.5742 (0.5742) loss_bbox_enc: 0.6746 (0.6746)
loss_giou_enc: 0.3207 (0.3207) loss_ce_unscaled: 0.2695 (0.2695)

class_error_unscaled: 0.0000 (0.0000) loss_bbox_unscaled: 0.0504 (0.0504)
loss_giou_unscaled: 0.0710 (0.0710) cardinality_error_unscaled: 288.2500
(288.2500) loss_ce_0_unscaled: 0.3359 (0.3359) loss_bbox_0_unscaled: 0.0553
(0.0553) loss_giou_0_unscaled: 0.0764 (0.0764) cardinality_error_0_unscaled:
203.5000 (203.5000) loss_ce_1_unscaled: 0.2715 (0.2715) loss_bbox_1_unscaled:
0.0518 (0.0518) loss_giou_1_unscaled: 0.0714 (0.0714)
cardinality_error_1_unscaled: 271.2500 (271.2500) loss_ce_enc_unscaled: 0.5742
(0.5742) loss_bbox_enc_unscaled: 0.1349 (0.1349) loss_giou_enc_unscaled:
0.1604 (0.1604) cardinality_error_enc_unscaled: 222.7500 (222.7500) time:
0.5984 data: 0.2906 max mem: 9284
Test: [10/38] eta: 0:00:10 class_error: 0.00 loss: 4.8775 (4.8486) loss_ce:
0.5391 (0.5418) loss_bbox: 0.2760 (0.3170) loss_giou: 0.2054 (0.2028)
loss_ce_0: 0.5820 (0.5508) loss_bbox_0: 0.4171 (0.3548) loss_giou_0: 0.2299
(0.2227) loss_ce_1: 0.5547 (0.5329) loss_bbox_1: 0.2822 (0.3134) loss_giou_1:
0.1965 (0.2044) loss_ce_enc: 0.7188 (0.7134) loss_bbox_enc: 0.4962 (0.5666)
loss_giou_enc: 0.3012 (0.3280) loss_ce_unscaled: 0.5391 (0.5418)
class_error_unscaled: 0.0000 (4.3182) loss_bbox_unscaled: 0.0552 (0.0634)
loss_giou_unscaled: 0.1027 (0.1014) cardinality_error_unscaled: 288.2500
(287.2273) loss_ce_0_unscaled: 0.5820 (0.5508) loss_bbox_0_unscaled: 0.0834
(0.0710) loss_giou_0_unscaled: 0.1150 (0.1113) cardinality_error_0_unscaled:
241.5000 (253.9318) loss_ce_1_unscaled: 0.5547 (0.5329) loss_bbox_1_unscaled:
0.0564 (0.0627) loss_giou_1_unscaled: 0.0983 (0.1022)
cardinality_error_1_unscaled: 276.2500 (277.9773) loss_ce_enc_unscaled: 0.7188
(0.7134) loss_bbox_enc_unscaled: 0.0992 (0.1133) loss_giou_enc_unscaled:
0.1506 (0.1640) cardinality_error_enc_unscaled: 233.2500 (256.8636) time:
0.3766 data: 0.0932 max mem: 9284
Test: [20/38] eta: 0:00:06 class_error: 0.00 loss: 4.5836 (4.5893) loss_ce:
0.5352 (0.5100) loss_bbox: 0.2873 (0.3152) loss_giou: 0.1719 (0.1914)
loss_ce_0: 0.4746 (0.5158) loss_bbox_0: 0.3630 (0.3605) loss_giou_0: 0.2254
(0.2120) loss_ce_1: 0.4062 (0.4779) loss_bbox_1: 0.3138 (0.3274) loss_giou_1:
0.1818 (0.1961) loss_ce_enc: 0.7148 (0.6896) loss_bbox_enc: 0.4905 (0.5018)
loss_giou_enc: 0.2707 (0.2916) loss_ce_unscaled: 0.5352 (0.5100)
class_error_unscaled: 0.0000 (3.8492) loss_bbox_unscaled: 0.0575 (0.0630)
loss_giou_unscaled: 0.0859 (0.0957) cardinality_error_unscaled: 284.7500
(283.5476) loss_ce_0_unscaled: 0.4746 (0.5158) loss_bbox_0_unscaled: 0.0726
(0.0721) loss_giou_0_unscaled: 0.1127 (0.1060) cardinality_error_0_unscaled:
241.5000 (245.7381) loss_ce_1_unscaled: 0.4062 (0.4779) loss_bbox_1_unscaled:
0.0628 (0.0655) loss_giou_1_unscaled: 0.0909 (0.0980)
cardinality_error_1_unscaled: 276.2500 (274.8095) loss_ce_enc_unscaled: 0.7148
(0.6896) loss_bbox_enc_unscaled: 0.0981 (0.1004) loss_giou_enc_unscaled:
0.1354 (0.1458) cardinality_error_enc_unscaled: 233.2500 (244.2500) time:
0.3314 data: 0.0468 max mem: 9284
Test: [30/38] eta: 0:00:02 class_error: 0.00 loss: 3.6060 (4.3277) loss_ce:
0.4531 (0.4632) loss_bbox: 0.2075 (0.2861) loss_giou: 0.1400 (0.1840)
loss_ce_0: 0.4688 (0.5116) loss_bbox_0: 0.2374 (0.3278) loss_giou_0: 0.1792
(0.2027) loss_ce_1: 0.3809 (0.4485) loss_bbox_1: 0.2163 (0.2979) loss_giou_1:
0.1478 (0.1893) loss_ce_enc: 0.6055 (0.6547) loss_bbox_enc: 0.3961 (0.4779)
loss_giou_enc: 0.2441 (0.2839) loss_ce_unscaled: 0.4531 (0.4632)

class_error_unscaled: 0.0000 (2.6075) loss_bbox_unscaled: 0.0415 (0.0572)
loss_giou_unscaled: 0.0700 (0.0920) cardinality_error_unscaled: 296.2500
(286.2742) loss_ce_0_unscaled: 0.4688 (0.5116) loss_bbox_0_unscaled: 0.0475
(0.0656) loss_giou_0_unscaled: 0.0896 (0.1013) cardinality_error_0_unscaled:
285.7500 (255.9355) loss_ce_1_unscaled: 0.3809 (0.4485) loss_bbox_1_unscaled:
0.0433 (0.0596) loss_giou_1_unscaled: 0.0739 (0.0946)
cardinality_error_1_unscaled: 293.7500 (278.6210) loss_ce_enc_unscaled: 0.6055
(0.6547) loss_bbox_enc_unscaled: 0.0792 (0.0956) loss_giou_enc_unscaled:
0.1220 (0.1420) cardinality_error_enc_unscaled: 276.0000 (255.5726) time:
0.2988 data: 0.0189 max mem: 9284
Test: [37/38] eta: 0:00:00 class_error: 0.00 loss: 3.6905 (4.3731) loss_ce:
0.3496 (0.4512) loss_bbox: 0.2448 (0.2941) loss_giou: 0.1798 (0.1936)
loss_ce_0: 0.5000 (0.5133) loss_bbox_0: 0.2473 (0.3347) loss_giou_0: 0.1714
(0.2124) loss_ce_1: 0.3594 (0.4436) loss_bbox_1: 0.2262 (0.3021) loss_giou_1:
0.1782 (0.1976) loss_ce_enc: 0.5977 (0.6517) loss_bbox_enc: 0.4045 (0.4866)
loss_giou_enc: 0.2664 (0.2922) loss_ce_unscaled: 0.3496 (0.4512)
class_error_unscaled: 0.0000 (2.1272) loss_bbox_unscaled: 0.0490 (0.0588)
loss_giou_unscaled: 0.0899 (0.0968) cardinality_error_unscaled: 296.7500
(288.2500) loss_ce_0_unscaled: 0.5000 (0.5133) loss_bbox_0_unscaled: 0.0495
(0.0669) loss_giou_0_unscaled: 0.0857 (0.1062) cardinality_error_0_unscaled:
287.5000 (262.3289) loss_ce_1_unscaled: 0.3594 (0.4436) loss_bbox_1_unscaled:
0.0452 (0.0604) loss_giou_1_unscaled: 0.0891 (0.0988)
cardinality_error_1_unscaled: 294.7500 (281.8289) loss_ce_enc_unscaled: 0.5977
(0.6517) loss_bbox_enc_unscaled: 0.0809 (0.0973) loss_giou_enc_unscaled:
0.1332 (0.1461) cardinality_error_enc_unscaled: 294.5000 (261.9539) time:
0.2833 data: 0.0170 max mem: 9284
Test: Total time: 0:00:12 (0.3190 s / it)
Averaged stats: class_error: 0.00 loss: 3.6905 (4.3731) loss_ce: 0.3496
(0.4512) loss_bbox: 0.2448 (0.2941) loss_giou: 0.1798 (0.1936) loss_ce_0:
0.5000 (0.5133) loss_bbox_0: 0.2473 (0.3347) loss_giou_0: 0.1714 (0.2124)
loss_ce_1: 0.3594 (0.4436) loss_bbox_1: 0.2262 (0.3021) loss_giou_1: 0.1782
(0.1976) loss_ce_enc: 0.5977 (0.6517) loss_bbox_enc: 0.4045 (0.4866)
loss_giou_enc: 0.2664 (0.2922) loss_ce_unscaled: 0.3496 (0.4512)
class_error_unscaled: 0.0000 (2.1272) loss_bbox_unscaled: 0.0490 (0.0588)
loss_giou_unscaled: 0.0899 (0.0968) cardinality_error_unscaled: 296.7500
(288.2500) loss_ce_0_unscaled: 0.5000 (0.5133) loss_bbox_0_unscaled: 0.0495
(0.0669) loss_giou_0_unscaled: 0.0857 (0.1062) cardinality_error_0_unscaled:
287.5000 (262.3289) loss_ce_1_unscaled: 0.3594 (0.4436) loss_bbox_1_unscaled:
0.0452 (0.0604) loss_giou_1_unscaled: 0.0891 (0.0988)
cardinality_error_1_unscaled: 294.7500 (281.8289) loss_ce_enc_unscaled: 0.5977
(0.6517) loss_bbox_enc_unscaled: 0.0809 (0.0973) loss_giou_enc_unscaled:
0.1332 (0.1461) cardinality_error_enc_unscaled: 294.5000 (261.9539)
Accumulating evaluation results…
DONE (t=0.26s).
IoU metric: bbox
 Average Precision (AP) @[IoU=0.50:0.95 | area=   all | maxDets=100] = 0.806
 Average Precision (AP) @[IoU=0.50 | area=   all | maxDets=100] = 0.955
 Average Precision (AP) @[IoU=0.75 | area=   all | maxDets=100] = 0.874

```
Average Precision  (AP) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Precision  (AP) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.340
Average Precision  (AP) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.816
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=  1 ] = 0.637
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets= 10 ] = 0.868
Average Recall     (AR) @[ IoU=0.50:0.95 | area=   all | maxDets=100 ] = 0.890
Average Recall     (AR) @[ IoU=0.50:0.95 | area= small | maxDets=100 ] = -1.000
Average Recall     (AR) @[ IoU=0.50:0.95 | area=medium | maxDets=100 ] = 0.608
Average Recall     (AR) @[ IoU=0.50:0.95 | area= large | maxDets=100 ] = 0.897
Training time 2:42:22
Results saved to output/results.json
Results saved to output/metrics_plot.png
```

[4]:
```python
#Open and display an image using the PIL (Python Imaging Library).
#This command loads the file metrics_plot.png from the /content/output/
 ↪directory.

from PIL import Image

Image.open("/content/output/metrics_plot.png")
```
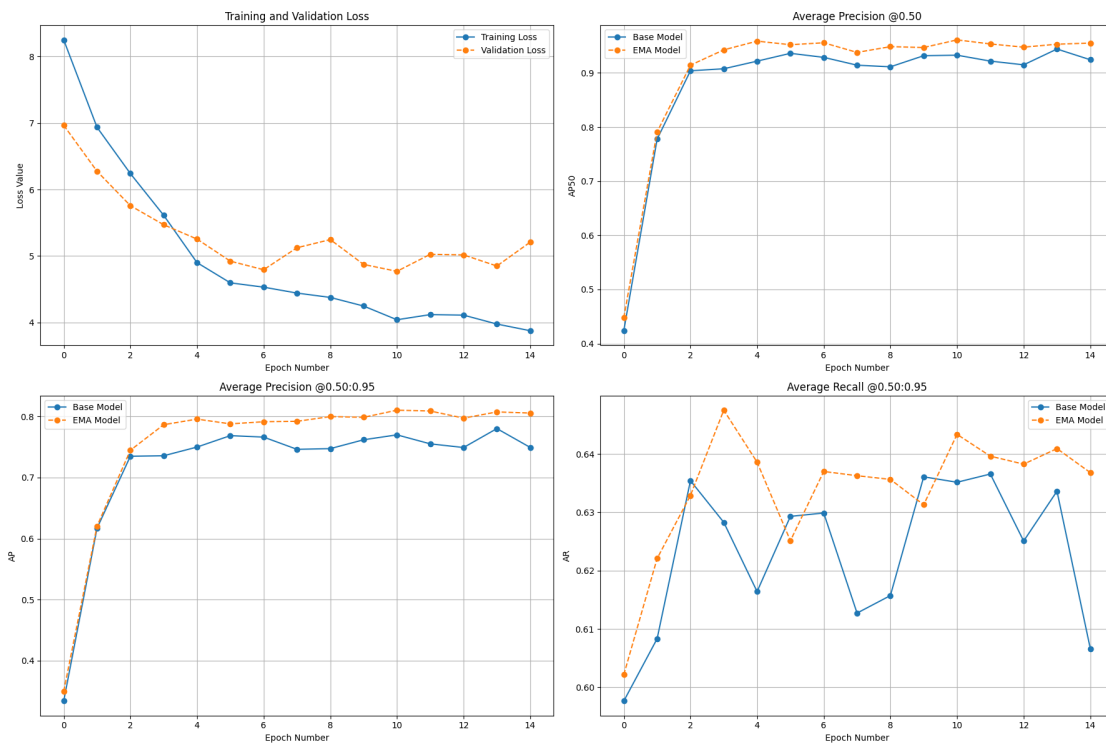
[4]:

2 Graph Interpretation

The visualized training metrics provide insight into the performance of the RFDetr base model over 15 epochs, comparing both the Base Model and the EMA (Exponential Moving Average) Model.

Top Left: Training and Validation Loss This plot shows that both training and validation loss decrease steadily, especially during the first few epochs. The training loss continues to drop consistently, while the validation loss flattens and fluctuates slightly after epoch 5. This may indicate the model is learning well, though a bit of overfitting could be starting beyond that point.

Top Right: Average Precision @ IoU 0.50 The Average Precision at IoU 0.50 rapidly increases during the first 2-3 epochs, then stabilizes above 0.90 for both models. The EMA model consistently outperforms the base model, reaching close to or above 0.95 in the later epochs, indicating highly accurate detections when allowing looser IoU matching.

Bottom Left: Average Precision @ IoU 0.50:0.95 This more challenging metric also shows steady improvements. The EMA model maintains a clear advantage over the base model throughout, peaking just over 0.80, while the base model remains slightly lower. This confirms the EMA model is more robust across various IoU thresholds.

Bottom Right: Average Recall @ IoU 0.50:0.95 Recall starts around 0.60 and increases slightly over time. The EMA model again shows a more consistent and slightly higher performance than the base model. The fluctuations in the base model suggest less stable recall performance across epochs.

Overall, the training metrics indicate that the model learns effectively during the early epochs, with strong performance in precision and recall metrics. The EMA model consistently performs better than the base model, especially in precision-related metrics, which suggests that enabling EMA can help improve generalization. The training was stable, with no signs of major divergence or degradation, making 15 epochs a reasonable duration for training on this dataset.

2.1 Run inference with fine-tuned model

```
[5]: #Install the supervision library and import it as sv to work with computer␣
     ↪vision datasets.
     #This code loads the test set from the COCO-formatted dataset using␣
     ↪DetectionDataset.from_coco, pointing to the test images and annotations.


     !pip install supervision

     import supervision as sv

     ds = sv.DetectionDataset.from_coco(
         images_directory_path=f"{dataset.location}/test",
         annotations_path=f"{dataset.location}/test/_annotations.coco.json",
     )
```

```
Requirement already satisfied: supervision in /usr/local/lib/python3.11/dist-
packages (0.26.1)
Requirement already satisfied: numpy>=1.21.2 in /usr/local/lib/python3.11/dist-
packages (from supervision) (2.0.2)
```

```
Requirement already satisfied: scipy>=1.10.0 in /usr/local/lib/python3.11/dist-
packages (from supervision) (1.16.0)
Requirement already satisfied: matplotlib>=3.6.0 in
/usr/local/lib/python3.11/dist-packages (from supervision) (3.10.0)
Requirement already satisfied: pyyaml>=5.3 in /usr/local/lib/python3.11/dist-
packages (from supervision) (6.0.2)
Requirement already satisfied: defusedxml>=0.7.1 in
/usr/local/lib/python3.11/dist-packages (from supervision) (0.7.1)
Requirement already satisfied: pillow>=9.4 in /usr/local/lib/python3.11/dist-
packages (from supervision) (11.3.0)
Requirement already satisfied: requests>=2.26.0 in
/usr/local/lib/python3.11/dist-packages (from supervision) (2.32.3)
Requirement already satisfied: tqdm>=4.62.3 in /usr/local/lib/python3.11/dist-
packages (from supervision) (4.67.1)
Requirement already satisfied: opencv-python>=4.5.5.64 in
/usr/local/lib/python3.11/dist-packages (from supervision) (4.12.0.88)
Requirement already satisfied: contourpy>=1.0.1 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(1.3.2)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.11/dist-
packages (from matplotlib>=3.6.0->supervision) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(4.59.0)
Requirement already satisfied: kiwisolver>=1.3.1 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(1.4.8)
Requirement already satisfied: packaging>=20.0 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(25.0)
Requirement already satisfied: pyparsing>=2.3.1 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(3.2.3)
Requirement already satisfied: python-dateutil>=2.7 in
/usr/local/lib/python3.11/dist-packages (from matplotlib>=3.6.0->supervision)
(2.9.0.post0)
Requirement already satisfied: charset-normalizer<4,>=2 in
/usr/local/lib/python3.11/dist-packages (from requests>=2.26.0->supervision)
(3.4.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-
packages (from requests>=2.26.0->supervision) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.11/dist-packages (from requests>=2.26.0->supervision)
(2.5.0)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.11/dist-packages (from requests>=2.26.0->supervision)
(2025.7.14)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-
```

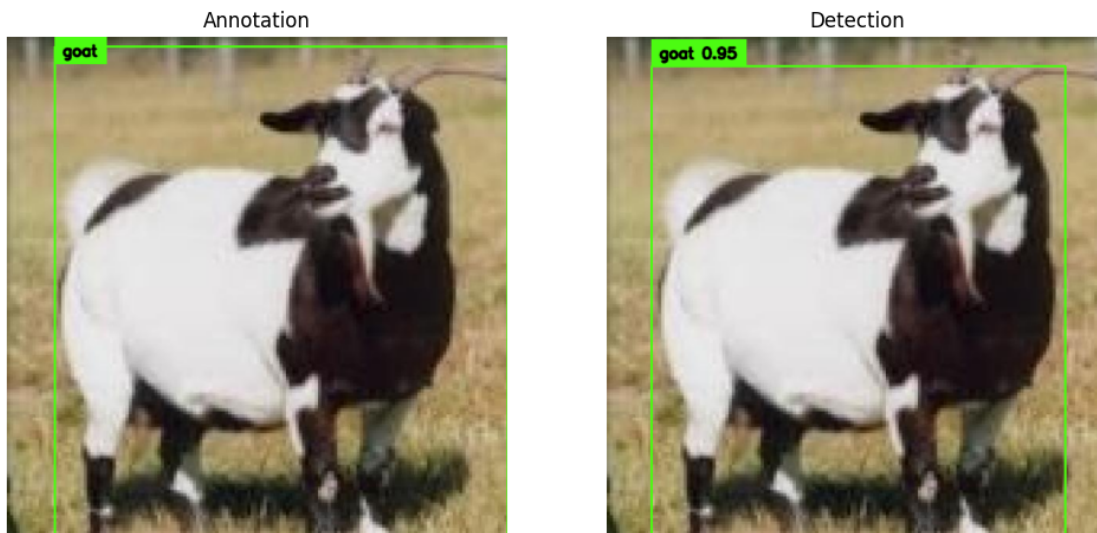packages (from python-dateutil>=2.7->matplotlib>=3.6.0->supervision) (1.17.0)

```
[6]: #This code visualizes both the ground truth annotations and the model's
     ↪predictions on a test image.
     #It uses the supervision library to draw bounding boxes and labels for
     ↪annotations and detections, then displays them side by side in a 1x2 grid
     ↪titled "Annotation" and "Detection".

     from rfdetr import RFDETRBase
     import supervision as sv
     from PIL import Image

     path, image, annotations = ds[0]
     image = Image.open(path)

     detections = model.predict(image, threshold=0.5)

     text_scale = sv.calculate_optimal_text_scale(resolution_wh=image.size)
     thickness = sv.calculate_optimal_line_thickness(resolution_wh=image.size)

     bbox_annotator = sv.BoxAnnotator(thickness=thickness)
     label_annotator = sv.LabelAnnotator(
         text_color=sv.Color.BLACK,
         text_scale=text_scale,
         text_thickness=thickness,
         smart_position=True)

     annotations_labels = [
         f"{ds.classes[class_id]}"
         for class_id
         in annotations.class_id
     ]

     detections_labels = [
         f"{ds.classes[class_id]} {confidence:.2f}"
         for class_id, confidence
         in zip(detections.class_id, detections.confidence)
     ]

     annotation_image = image.copy()
     annotation_image = bbox_annotator.annotate(annotation_image, annotations)
     annotation_image = label_annotator.annotate(annotation_image, annotations,
     ↪annotations_labels)

     detections_image = image.copy()
     detections_image = bbox_annotator.annotate(detections_image, detections)
```

```
detections_image = label_annotator.annotate(detections_image, detections,␣
 ↪detections_labels)

sv.plot_images_grid(images=[annotation_image, detections_image], grid_size=(1,␣
 ↪2), titles=["Annotation", "Detection"])
```


Annotation   Detection

[7]:
```
#This code loops through the first 9 test images, runs object detection using␣
 ↪the trained RFDetr model, and draws the predicted bounding boxes with class␣
 ↪labels and confidence scores.
#The results are displayed in a 3×3 grid using the supervision library.

import supervision as sv
from rfdetr import RFDETRBase
from PIL import Image

detections_images = []

for i in range(9):
    path, image, annotations = ds[i]
    image = Image.open(path)

    detections = model.predict(image, threshold=0.5)

    text_scale = sv.calculate_optimal_text_scale(resolution_wh=image.size)
    thickness = sv.calculate_optimal_line_thickness(resolution_wh=image.size)

    bbox_annotator = sv.BoxAnnotator(thickness=thickness)
    label_annotator = sv.LabelAnnotator(
```

```python
        text_color=sv.Color.BLACK,
        text_scale=text_scale,
        text_thickness=thickness,
        smart_position=True)

    detections_labels = [
        f"{ds.classes[class_id]} {confidence:.2f}"
        for class_id, confidence
        in zip(detections.class_id, detections.confidence)
    ]

    detections_image = image.copy()
    detections_image = bbox_annotator.annotate(detections_image, detections)
    detections_image = label_annotator.annotate(detections_image, detections,
↪detections_labels)

    detections_images.append(detections_image)

sv.plot_images_grid(images=detections_images, grid_size=(3, 3), size=(12, 12))
```
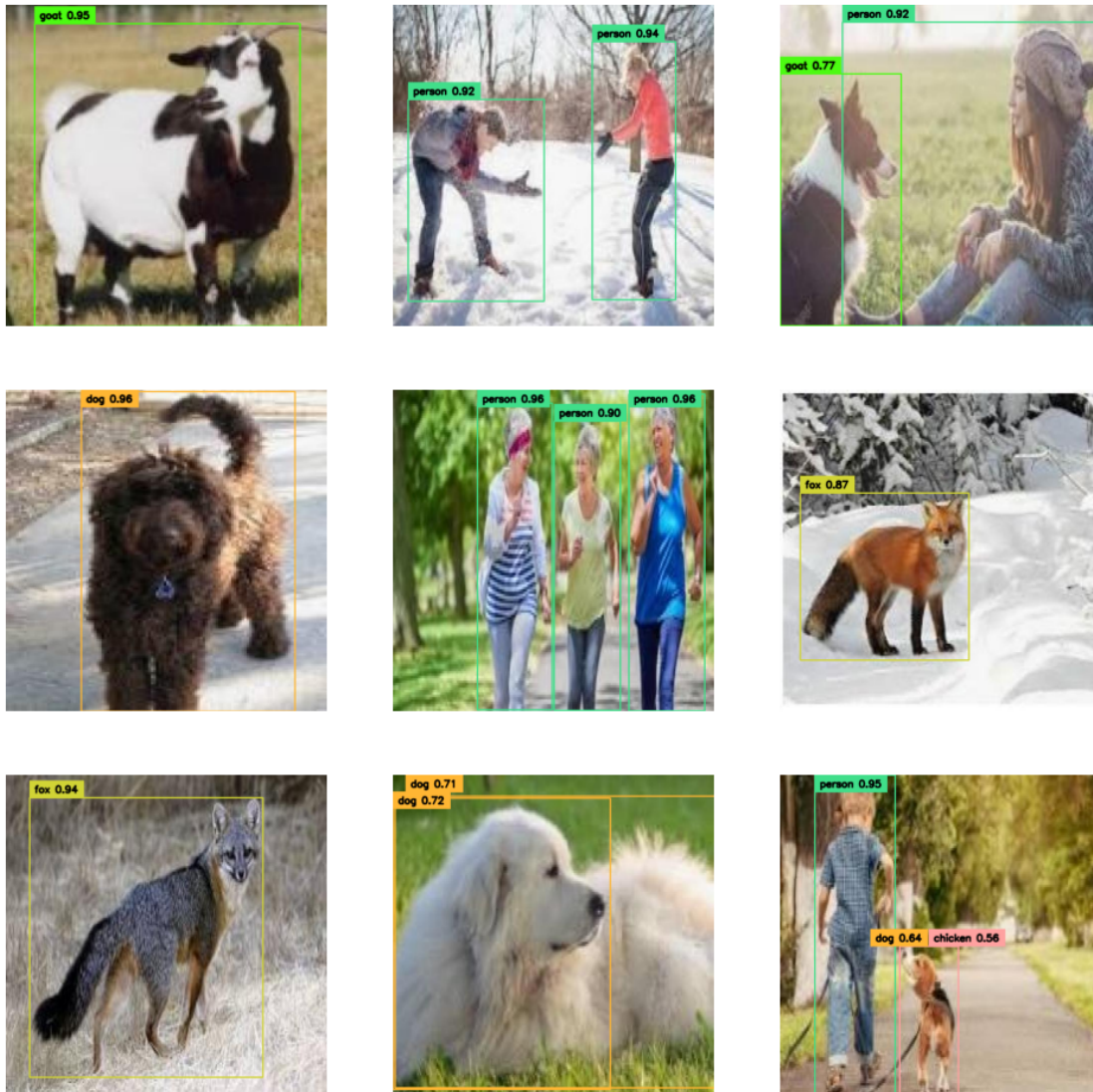
2.2 Evaluate fine-tuned model

```
[8]: #Evaluate the model's performance by collecting ground truth annotations and␣
     ↪predicted detections for all images in the dataset.
     #This will loop through each image with tqdm for progress tracking and store␣
     ↪the results in targets and predictions for calculating evaluation metrics.

     import supervision as sv
     from tqdm import tqdm
     from supervision.metrics import MeanAveragePrecision

     targets = []
     predictions = []
```

```
for path, image, annotations in tqdm(ds):
    image = Image.open(path)
    detections = model.predict(image, threshold=0.5)

    targets.append(annotations)
    predictions.append(detections)
```

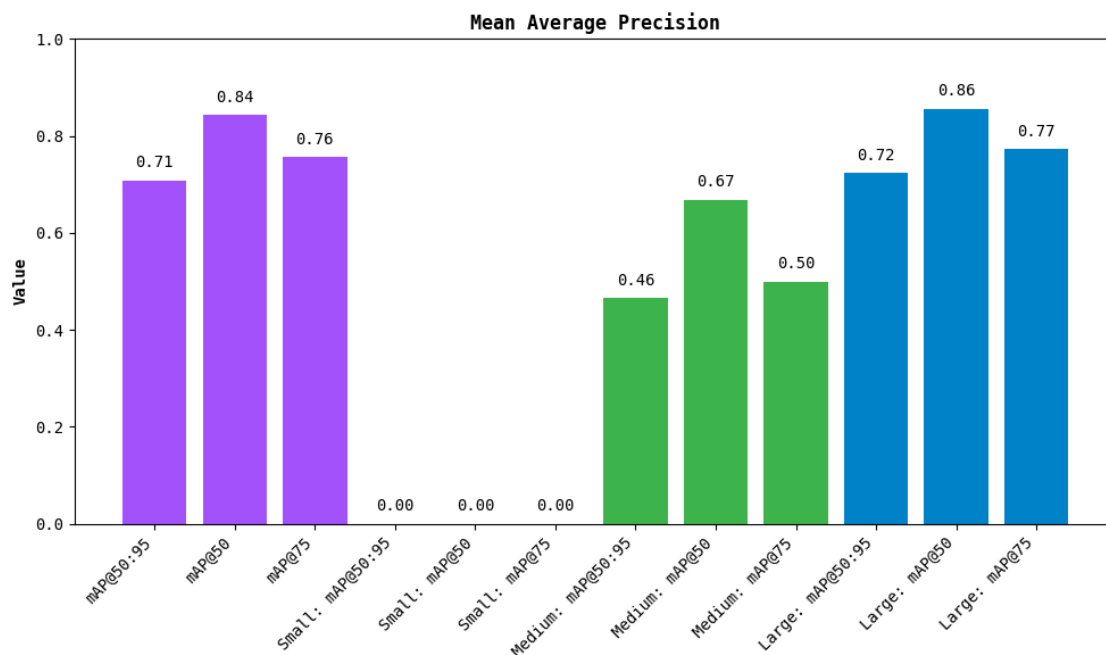100%| | 150/150 [00:07<00:00, 20.45it/s]

[9]: *#Calculate the Mean Average Precision (mAP) using the MeanAveragePrecision␣*
     ↪class from the supervision library.
     #This will evaluate the model's detection performance and plot precision-recall␣
     ↪curves for each class.

     map_metric = MeanAveragePrecision()
     map_result = map_metric.update(predictions, targets).compute()

     map_result.plot()

[10]: *#Calculate the confusion matrix using predicted and ground truth detections␣*
      ↪with class labels.
      #This will show how well the model distinguishes between classes by plotting␣
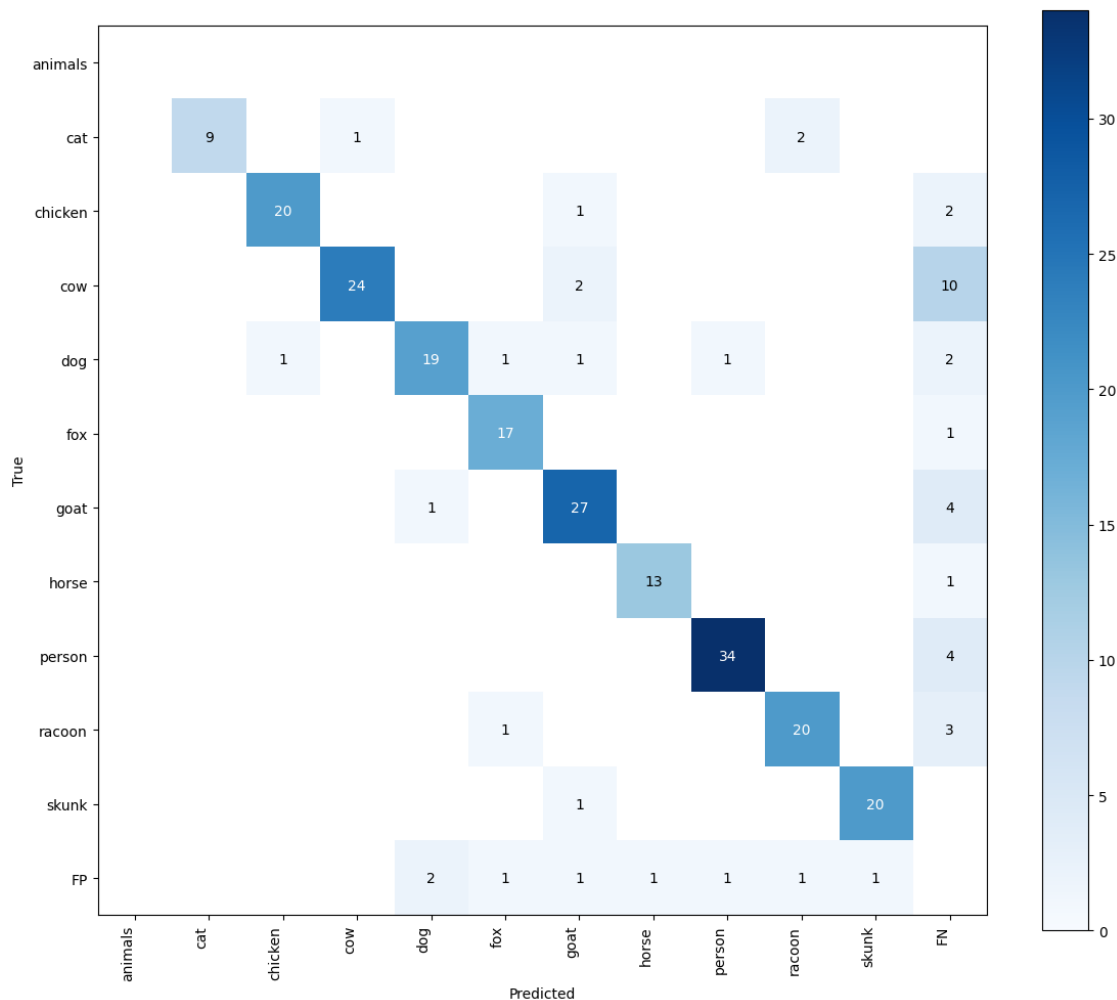   *↪the confusion matrix.*

```
confusion_matrix = sv.ConfusionMatrix.from_detections(
    predictions=predictions,
    targets=targets,
    classes=ds.classes
)

confusion_matrix.plot()
```

[10]:

3 Confusion Matrix Interpretation

The confusion matrix shown evaluates the performance of the object detection model by comparing predicted and actual (true) class labels across various animal categories. Each row represents the actual class, while each column represents the predicted class. Ideally, high values should appear along the diagonal, indicating correct predictions.

From the matrix:

- The model performs very well on classes like **person** (34 correct detections), **goat** (27), **cow** (24), **chicken** (20), **dog** (19), **fox** (17), and **skunk** (20), where most predictions fall on the correct diagonal cell.
- Some classes show confusion. For example, the **dog** class was sometimes predicted as cat, cow, or person. The **cat** class had 1 prediction confused with chicken, and **chicken** was occasionally predicted as raccoon.
- The bottom row (FP) shows false positives, which are predictions made for each class when no actual object was present. These values are low (e.g., 2 for "animals," and 1 each for others), meaning the model does not over-predict much.
- The rightmost column (FN) shows false negatives, which are missed detections for each class. Notably, **cow** and **goat** have higher FN values (10 and 4, respectively), suggesting some objects of these classes went undetected.

Overall, the matrix suggests that the model generally performs well, with strong detection for most classes and relatively few misclassifications or false detections. However, improvements could be made in reducing confusion between similar-looking animals and lowering false negatives in certain categories.

[11]:
```python
#Calculate the accuracy, precision, recall, and F1 score using values extracted
 ↪from the confusion matrix.
#This will give an overall summary of the model's classification performance
 ↪across all classes.

import numpy as np
from sklearn.metrics import accuracy_score, precision_score, recall_score,
 ↪f1_score

# Get confusion matrix
cm = confusion_matrix.matrix  # NumPy array (float64 values)

# Extract y_true and y_pred
y_true = []
y_pred = []

num_classes = cm.shape[0]

for true_class in range(num_classes):
    for pred_class in range(num_classes):
        count = int(cm[true_class, pred_class])  # Convert to int
        y_true += [true_class] * count
        y_pred += [pred_class] * count

# Compute and print metrics
print("Accuracy:", accuracy_score(y_true, y_pred))
print("Precision (macro):", precision_score(y_true, y_pred, average='macro',
 ↪zero_division=0))
print("Recall (macro):", recall_score(y_true, y_pred, average='macro',
 ↪zero_division=0))
```

```
print("F1 Score (macro):", f1_score(y_true, y_pred, average='macro',␣
  ↪zero_division=0))
```

```
Accuracy: 0.8087649402390438
Precision (macro): 0.8308328342715694
Recall (macro): 0.7675862622630357
F1 Score (macro): 0.7943700775423914
```

4   Results Interpretation

The evaluation results show that the RFDetr base model trained for 15 epochs on the 1700-image dataset achieved an accuracy of 80.88%, indicating that about 8 out of 10 predictions were correct overall. The macro precision of 83.08% suggests the model is generally good at avoiding false positives across classes, while the macro recall of 76.76% shows it misses some true objects, especially in harder-to-detect classes. The macro F1 score of 79.44% reflects a solid balance between precision and recall.

Given the relatively small dataset size and modest training duration, these are strong results. However, there is still room to improve recall, possibly by training longer, applying more diverse augmentations, or fine-tuning with a pretrained backbone.

5   References

- Roboflow. (n.d.). RT-DETR: Real-time object detection with transformers. https://roboflow.com/model/rt-detr
- Johnson, J. (2023, July 27). How to train RT-DETR on a custom dataset with transformers. Roboflow. https://blog.roboflow.com/train-rt-detr-custom-dataset-transformers/
- Murtaza, S. (2024, January 15). RF-DETR: An open-source object detection model. LearnOpenCV. https://learnopencv.com/rf-detr-object-detection/
- Sharma, A. (2025, March). Roboflow's RF-DETR: A powerful object detection model. Analytics Vidhya. https://www.analyticsvidhya.com/blog/2025/03/roboflows-rf-detr/
- Tang, Y., Li, Z., Wu, L., He, Y., Huang, G., & Wang, X. (2025). RT-DETR: RT-DETR: Real-Time Detection Transformer (arXiv preprint arXiv:2504.13099v1). https://arxiv.org/abs/2504.13099v1