

Renal Quiz →



30 / 1

The uriniferous tubule is defined as the structural unit of the kidney. Which of the following components is NOT considered part of the nephron ?itself

A. Proximal convoluted tubule

B. Connecting tubule

C. The collecting duct

D. Loop of Henle

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Renal Quiz →



30 / 1

The uriniferous tubule is defined as the structural unit of the kidney. Which of the following components is NOT considered part of the nephron?

?itself

A. Proximal convoluted tubule

✗ إجابتك غير صحيحة

The proximal convoluted tubule is the first tubule segment immediately following the renal corpuscle within the nephron.

B. Connecting tubule

C. The collecting duct

✓ الإجابة الصحيحة

According to the source material, the uriniferous tubule is formed of the nephron and the collecting duct, making the duct a separate component of the unit.

D. Loop of Henle

Renal Quiz



True or False: The renal medulla appears striated because of the presence of renal corpuscles and convoluted tubules.

True .A

False .B

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Renal Quiz →



30 / 2

True or False: The renal medulla appears striated because of the presence of renal corpuscles and convoluted tubules.

True .A

✗ إجابتك غير صحيحة

Renal corpuscles and convoluted tubules are actually responsible for the granular appearance of the cortex, not the striated appearance of the medulla.

False .B

✓ الإجابة الصحيحة

The medulla appears striated due to the longitudinal arrangement of straight renal tubules, collecting ducts, and surrounding vessels.

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Renal Quiz →



30 / 3

Which specific histological structure
is formed by a single medullary ray
and the mass of cortical tissue
?surrounding it

A. Medullary pyramid

B. Renal column

C. Renal lobule

D. Renal lobe

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Renal Quiz →



30 / 3

Which specific histological structure is formed by a single medullary ray and the mass of cortical tissue surrounding it

A. Medullary pyramid

✗ إجابتك غير صحيحة

The medullary pyramid is the large triangular structure within the medulla, not a sub-unit of the cortex

B. Renal column

C. Renal lobule

✓ الإجابة الصحيحة

A renal lobule is defined as a functional unit consisting of a medullary ray (the central axis) and the surrounding cortical labyrinth it drains

D. Renal lobe

Renal Quiz →



30 / 4

The 'area cribrosa' is a specialized
?region found at which location

The tip of the renal papilla .A

The renal hilum .B

The vascular pole of the corpuscle .C

The cortico-medullary junction .D

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Renal Quiz



The 'area cribrosa' is a specialized
?region found at which location

The tip of the renal papilla .A

✓ إجابتك صحيحة

The apex of the renal pyramid, or papilla, is perforated by large collecting ducts, creating the sieve-like area .cribrosa

The renal hilum .B

The vascular pole of the corpuscle .C

The cortico-medullary junction .D

السابق

Renal Quiz →



30 / 5

Which type of nephron is characterized by having its renal corpuscle located just beneath the kidney capsule and possessing a very short loop of Henle

A. Long looped nephron

B. Juxtamedullary nephron

C. Intermediate nephron

D. Subcapsular nephron

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Renal Quiz →



30 / 5

Which type of nephron is characterized by having its renal corpuscle located just beneath the kidney capsule and possessing a very short loop of Henle?

A. Long looped nephron

✗ إجابتك غير صحيحة

This is a synonym for a juxtamedullary nephron, which is the opposite of the type described in the question

B. Juxtamedullary nephron

C. Intermediate nephron

D. Subcapsular nephron

✓ الإجابة الصحيحة

Subcapsular (or cortical) nephrons are located near the capsule and have short loops that do not penetrate deeply into the medulla

Renal Quiz →



30 / 6

In the renal vasculature, which vessels follow an arched course specifically along the bases of the ?medullary pyramids

A. Segmental arteries

B. Arcuate arteries

C. Interlobular arteries

D. Interlobar arteries

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Renal Quiz →



30 / 6

In the renal vasculature, which vessels follow an arched course specifically along the bases of the ?medullary pyramids

A. Segmental arteries

✗ إجابتك غير صحيحة

Segmental arteries are the first branches of the renal artery before they enter the parenchyma as interlobar arteries.

B. Arcuate arteries

✓ الإجابة الصحيحة

Arcuate arteries are situated at the cortico-medullary junction and arch over the bases of the renal pyramids.

C. Interlobular arteries

D. Interlobar arteries

Renal Quiz →



30 / 7

The vasa recta are straight capillary loops that arise from which specific structure

A. Efferent arterioles of juxtamedullary nephrons

B. Afferent arterioles of subcapsular nephrons

C. Peritubular cortical capillaries

D. Interlobular veins

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Renal Quiz



The vasa recta are straight capillary loops that arise from which specific structure?

Efferect arterioles of .A
juxtamedullary nephrons

✓ إجابتك صحيحة

Juxtamedullary nephrons have efferent arterioles that descend into the medulla to form the vasa recta capillary network.

Afferent arterioles of subcapsular .B
nephrons

Peritubular cortical capillaries .C

Interlobular veins .D

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Renal Quiz →



30 / 8

The counter-current multiplier mechanism is a joint function of which
?two structures

A. Glomerulus and Bowman's capsule

B. Loop of Henle and vasa recta

C. Collecting duct and renal pelvis

D. PCT and peritubular capillaries

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Renal Quiz



The counter-current multiplier mechanism is a joint function of which
?two structures

Glomerulus and Bowman's capsule .A

✗ إجابتك غير صحيحة

These structures are responsible for filtration, not the concentration of urine .through counter-current exchange

Loop of Henle and vasa recta .B

✓ الإجابة الصحيحة

The Loop of Henle creates the medullary hyperosmolarity, while the vasa recta maintains it, together concentrating the urine.

Collecting duct and renal pelvis .C

PCT and peritubular capillaries .D

Renal Quiz →



30 / 9

Which component of the renal corpuscle is described as being
?formed by podocytes

.A Parietal layer of Bowman's capsule

.B Visceral layer of Bowman's capsule

.C Mesangial matrix

.D Glomerular endothelium

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Renal Quiz



Which component of the renal corpuscle is described as being
formed by podocytes

Parietal layer of Bowman's capsule .A

✗ إجابتك غير صحيحة

The parietal layer is composed of simple squamous epithelium and forms the outer boundary of the urinary .space

Visceral layer of Bowman's capsule .B

✓ الإجابة الصحيحة

Podocytes are modified epithelial cells that wrap around the glomerular capillaries to form the visceral layer.

Mesangial matrix .C

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Renal Quiz →



30 / 10

True or False: The fenestrated endothelium of the glomerular capillaries contains diaphragms across its pores to prevent protein loss.

True .A

False .B

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Renal Quiz →



30 / 10

True or False: The fenestrated endothelium of the glomerular capillaries contains diaphragms across its pores to prevent protein loss.

A. True

✗ إجابتك غير صحيحة

Unlike typical fenestrated capillaries in other organs, the glomerular capillary fenestrations lack diaphragms.

B. False

✓ الإجابة الصحيحة

The source material explicitly states that glomerular fenestrations have no diaphragm.

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Renal Quiz →



30 / 11

The principal electrical barrier to the filtration of negatively charged proteins (like albumin) in the kidney is :provided by

A. Mesangial cells

B. Heparan sulfate in the basement membrane

C. The slit diaphragms

D. Type IV collagen in the basement membrane

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Renal Quiz



The principal electrical barrier to the filtration of negatively charged proteins (like albumin) in the kidney is :provided by

Mesangial cells .A

✖ إجابتك غير صحيحة

Mesangial cells serve supportive and phagocytic roles rather than acting as an electrical filter

Heparan sulfate in the basement .B
membrane

✓ الإجابة الصحيحة

Heparan sulfate provides the negative electrical charge in the glomerular basement membrane that repels anions.

Renal Quiz →



30 / 12

Mesangial cells are often compared to which type of cell due to their location and contractility

Podocytes .A

Endothelial cells .B

Pericytes .C

Fibroblasts .D

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Renal Quiz



Mesangial cells are often compared to which type of cell due to their ?location and contractility

Podocytes .A

✗ إجابتك غير صحيحة

Podocytes are epithelial cells of the visceral layer, whereas mesangial cells occupy the space between capillaries.

Endothelial cells .B

Pericytes .C

✓ الإجابة الصحيحة

Mesangial cells are described as 'pericyte-like cells' that provide structural support to capillary walls

Fibroblasts .D

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Renal Quiz →



30 / 13

Why does the cytoplasm of the Proximal Convoluted Tubule (PCT) cells appear deeply acidophilic under ?a light microscope

A. Abundant mitochondria

B. Rough endoplasmic reticulum

C. High concentration of lysosomes

D. Presence of a brush border

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Renal Quiz →



30 / 13

Why does the cytoplasm of the Proximal Convoluted Tubule (PCT) cells appear deeply acidophilic under ?a light microscope

A. Abundant mitochondria

✓ إجابتك صحيحة

The high energy demand for active ion transport requires numerous mitochondria, which stain intensely with acid dyes.

B. Rough endoplasmic reticulum

C. High concentration of lysosomes

D. Presence of a brush border

Renal Quiz →



30 / 14

Which segment of the uriniferous tubule is lined by simple squamous epithelium with few organelles and takes a U-shaped course in the ?medulla

A. Distal Convoluted Tubule

B. Thick descending limb

C. Collecting ducts

D. Thin limbs of the Loop of Henle

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التالي

السابق

Renal Quiz



Which segment of the uriniferous tubule is lined by simple squamous epithelium with few organelles and takes a U-shaped course in the ?medulla

Distal Convoluted Tubule .A

✖ إجابتك غير صحيحة

The DCT is lined by simple cuboidal epithelium and is located in the cortex, not typically in the U-shaped medullary region.

Thick descending limb .B

Collecting ducts .C

Thin limbs of the Loop of Henle .D

✓ الإجابة الصحيحة

The thin descending and thin ascending limbs are lined by simple squamous epithelium, differing from the thicker cuboidal segments

Renal Quiz →



30 / 15

Aldosterone-dependent facultative reabsorption of sodium (Na^+) and secretion of potassium (K^+) occurs primarily in the

A. Distal Convoluted Tubule and collecting duct

B. Proximal Convoluted Tubule

C. Renal corpuscle

D. Thin limb of the Loop of Henle

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التالي

السابق

Renal Quiz →



30 / 15

Aldosterone-dependent facultative reabsorption of sodium (Na^+) and secretion of potassium (K^+) occurs primarily in the

A. Distal Convuluted Tubule and collecting duct

✓ إجابتك صحيحة

These segments are the primary sites for hormonal regulation of electrolyte balance by aldosterone

B. Proximal Convuluted Tubule

C. Renal corpuscle

D. Thin limb of the Loop of Henle

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السابق

Renal Quiz →



30 / 16

In a patient with severe hematuria, red blood cells have managed to bypass the filtration barrier. Histologically, which layer is the very first physical barrier they would encounter in the glomerulus

A. Fenestrated endothelium

B. Parietal layer of Bowman's capsule

C. Glomerular basement membrane

D. Filtration slit diaphragm

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Renal Quiz →



30 / 16

In a patient with severe hematuria, red blood cells have managed to bypass the filtration barrier. Histologically, which layer is the very first physical barrier they would encounter in the glomerulus

A. Fenestrated endothelium

✓ إجابتك صحيحة

The endothelium is the innermost layer of the glomerular capillary and the first line of the filtration barrier

B. Parietal layer of Bowman's capsule

C. Glomerular basement membrane

D. Filtration slit diaphragm

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السابق

Renal Quiz →



30 / 17

True or False: The proximal convoluted tubule is the longest convoluted segment of the nephron and has a larger diameter than the distal convoluted tubule.

True .A

False .B

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Renal Quiz



True or False: The proximal convoluted tubule is the longest convoluted segment of the nephron and has a larger diameter than the distal convoluted tubule.

True .A

✓ إجابتك صحيحة

The source confirms that PCT cut sections are frequently seen because it is the longest segment and has a large diameter.

False .B

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Renal Quiz →



30 / 18

The basal striations observed in PCT cells are caused by the vertical ?orientation of which organelle

A. Golgi apparatus

B. Microvilli

C. Lysosomes

D. Mitochondria

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Renal Quiz



The basal striations observed in PCT cells are caused by the vertical orientation of which organelle

Golgi apparatus .A

✗ إجابتك غير صحيحة

The Golgi is usually supranuclear and does not create the linear striations seen at the basal membrane

Microvilli .B

Lysosomes .C

Mitochondria .D

✓ الإجابة الصحيحة

Longitudinally oriented mitochondria are located within basal infoldings, creating the appearance of striations at the base of the cell.

Renal Quiz →



30 / 19

Which structure connects the renal
?corpuscle to the Loop of Henle

A. Proximal Convoluted Tubule

B. Distal Convoluted Tubule

C. Ureter

D. Collecting duct

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Renal Quiz



Which structure connects the renal corpuscle to the Loop of Henle

Proximal Convoluted Tubule .A

✓ إجابتك صحيحة

Filtrate flows from the urinary space of the corpuscle into the PCT, which then leads to the loop of Henle

Distal Convoluted Tubule .B

Ureter .C

Collecting duct .D

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السابق

Renal Quiz →



30 / 20

The 'subpodocytic space' is located between which two specific parts of ?the podocyte

A. Cell body and primary processes

B. Primary and secondary processes

C. Pedicels and the basement membrane

D. The nucleus and the Golgi apparatus

تلميح ▼

التالي

السابق

Renal Quiz



The 'subpodocytic space' is located between which two specific parts of the podocyte

Cell body and primary processes .A

✓ إجابتك صحيحة

The subpodocytic space exists beneath the primary processes and cell body, separating them from the capillaries

Primary and secondary processes .B

Pedicels and the basement .C
membrane

The nucleus and the Golgi apparatus

السابق

Renal Quiz →



30 / 21

What is the primary histological difference between the PCT and DCT lumen when viewed under a light microscope?

A. There is no visible difference in the lumens

B. The DCT lumen is occluded by a thick brush border

C. The PCT lumen is narrow/occluded while the DCT lumen is wider and clearer

D. The PCT lumen is lined by squamous cells

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Renal Quiz



What is the primary histological difference between the PCT and DCT lumen when viewed under a light microscope

There is no visible difference in the .A
lumens

✗ إجابتك غير صحيحة

The presence or absence of the brush border creates a distinct visual difference in the clarity and size of the .lumen

The DCT lumen is occluded by a .5 μ m thick brush border

The PCT lumen is narrow/occluded .C
while the DCT lumen is wider and
clearer

✓ الإجابة الصحيحة

The well-developed brush border of the PCT makes its lumen look fuzzy or closed, whereas the DCT has few microvilli.

The PCT lumen is lined by .D

Renal Quiz →



30 / 22

The renal interstitium is primarily composed of a network of which type
?of fiber

.A Collagen Type I fibers

.B Reticular fibers

.C Smooth muscle fibers

.D Elastic fibers

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Renal Quiz



The renal interstitium is primarily composed of a network of which type of fiber

Collagen Type I fibers .A

✗ إجابتك غير صحيحة

Collagen Type I is typical of the fibrous capsule, but the internal interstitium is made of finer reticular fibers (Type III)

Reticular fibers .B

✓ الإجابة الصحيحة

The source material identifies reticular fibers as the main component forming the renal interstitium that holds tubules together.

Smooth muscle fibers .C

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Renal Quiz →



30 / 23

True or False: The efferent arteriole in the kidney is part of an 'arterial portal circulation'.

True .A

False .B

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Renal Quiz →



30 / 23

True or False: The efferent arteriole in the kidney is part of an 'arterial portal circulation'.

True .A

✓ إجابتك صحيحة

The source highlights that the efferent arteriole connects two capillary networks (glomerular and peritubular/vasa recta), forming a portal system.

False .B

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Renal Quiz →



30 / 24

Which structure contains the
?"filtration slit diaphragms

A. The pores of the endothelial cells

B. The inner layer of the basement
membrane

C. Spaces between podocyte
pedicels

D. The vascular pole of the
glomerulus

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Renal Quiz →



30 / 24

Which structure contains the
?"filtration slit diaphragms

The pores of the endothelial cells .A

✗ إجابتك غير صحيحة

Glomerular endothelial fenestrations
are specifically noted to lack
.diaphragms

The inner layer of the basement .B
membrane

Spaces between podocyte .C
pedicels

✓ الإجابة الصحيحة

Filtration slit diaphragms bridge the
gaps between interdigitating secondary
.processes (pedicels) of podocytes

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Renal Quiz →



30 / 25

Renal columns (of Bertin) are histologically composed of which ?tissue type

.A Adipose tissue

.B Fibrous connective tissue

.C Medullary tissue

.D Cortical tissue

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Renal Quiz →



30 / 25

Renal columns (of Bertin) are histologically composed of which ?tissue type

A. Adipose tissue

✗ إجابتك غير صحيحة

Adipose tissue is found in the renal sinus, not within the renal columns

B. Fibrous connective tissue

C. Medullary tissue

D. Cortical tissue

✓ الإجابة الصحيحة

Renal columns are extensions of the cortex that project into the medulla between the renal pyramids

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السابق

Renal Quiz →



30 / 26

Which functional characteristic of DCT cells allows for the active transport of sodium (Na^+) against its concentration gradient

A. Extensive basal infoldings and numerous mitochondria

B. A simple squamous shape to minimize distance

C. Numerous apical endocytotic vesicles

D. The presence of a thick brush border

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Renal Quiz →



30 / 26

Which functional characteristic of DCT cells allows for the active transport of sodium (Na^+) against its concentration gradient

A. Extensive basal infoldings and numerous mitochondria

✓ إجابتك صحيحة

Infoldings increase surface area for Na-K pumps, and mitochondria provide the necessary ATP for active transport.

B. A simple squamous shape to minimize distance

C. Numerous apical endocytotic vesicles

D. The presence of a thick brush

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السابق

Renal Quiz →



30 / 27

Where does the proximal convoluted tubule transition into a different epithelial type at the urinary pole

.A From transitional epithelium to squamous cells

.B From simple cuboidal to simple columnar

.C From simple squamous to simple cuboidal

.D From podocytes to squamous cells

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Renal Quiz →



30 / 27

Where does the proximal convoluted tubule transition into a different epithelial type at the urinary pole?

A. From transitional epithelium to squamous cells

✗ إجابتك غير صحيحة

Transitional epithelium is found in the ureter and bladder, not in the renal corpuscle.

B. From simple cuboidal to simple columnar

C. From simple squamous to simple cuboidal

✓ الإجابة الصحيحة

The parietal layer of Bowman's capsule is simple squamous, which changes to simple cuboidal at the beginning of the PCT.

D. From podocytes to squamous cells

Renal Quiz →



30 / 28

What is the primary role of intraglomerular mesangial cells in ?maintaining the filtration barrier

.A Providing the negative charge to the barrier

.B Phagocytosis of filtration residues and renewal of the GBM

.C Blocking the entry of blood cells into the capillaries

.D Formation of the slit diaphragms

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Renal Quiz →



30 / 28

What is the primary role of intraglomerular mesangial cells in ?maintaining the filtration barrier

Providing the negative charge to .A the barrier

✗ إجابتك غير صحيحة

The negative charge is a property of the heparan sulfate in the fused basal laminae, not the mesangial cells

Phagocytosis of filtration residues .B and renewal of the GBM

✓ الإجابة الصحيحة

They clean the filter by phagocytosing trapped molecules and help in the continuous turnover/renewal of the basement membrane

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السابق

Renal Quiz →



30 / 29

Which of the following is a component
?of a single renal lobe

A medullary ray and its .A
surrounding cortical labyrinth

The renal sinus and its associated .B
adipose tissue

A medullary pyramid plus half of .C
the adjacent renal columns

A single minor calyx and the .D
papilla draining into it

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السابق

Renal Quiz



Which of the following is a component of a single renal lobe?

A medullary ray and its .A
surrounding cortical labyrinth

✗ إجابتك غير صحيحة

This describes a renal lobule, which is a much smaller subdivision of the kidney

The renal sinus and its associated .B
adipose tissue

A medullary pyramid plus half of the adjacent renal columns

✓ الإجابة الصحيحة

A renal lobe is defined as one pyramid and the cortical tissue surrounding its base and sides

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Renal Quiz →



30 / 30

True or False: The Loop of Henle's primary function is the acidification of urine by reabsorbing bicarbonate (HCO_3^-)

.A False

.B True

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تم

السابق

Renal Quiz →



30 / 30

True or False: The Loop of Henle's primary function is the acidification of urine by reabsorbing bicarbonate (HCO_3^-)

False .A

✓ إجابتك صحيحة

The primary role of the Loop of Henle is to create a hyperosmolar interstitium for the counter-current multiplier mechanism.

True .B

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