Cisco IOS Bulkstat and Data Collection Manager Command Reference

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add cmd

To add **show** commands for which the output needs to be collected, use the **add cmd** command in Bulkstat data set command configuration mode. To remove the command, use the **no** form of this command.

add cmd *command-line*

no add cmd *command-line*

Syntax Description

command-line	Name of the **show** command for which output needs to be collected.

Command Default

By default, **show** commands are not added and output is not collected.

Command Modes

Bulkstat data set command configuration (config-bs-ds-cmd)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Add only **show** commands, because other commands will be rejected.

Examples

The following example shows how to add the **show snmp stats oid** command to Bulkstat SNMP data set:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data snmp-set type command
Device(config-bs-ds-cmd)# add cmd show snmp stats oid
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat command data set.

buckets

To configure the number of buckets in which the values of the object are saved when distribution or percentile processing is performed, use the **buckets** command in Bulkstat data group process configuration mode. To remove the buckets, use the **no** form of this command.

buckets *number*

no buckets

Syntax Description

number	Number of buckets configured to save the values of objects.

Command Default

By default, buckets are not configured for a Bulkstat data group.

Command Modes

Bulkstat data group process configuration (config-bs-dg-proc)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Specify the number of buckets to distribute the values of the object. Based on the configuration, counters are maintained per bucket and incremented whenever the data falls into a bucket range. Two more exception buckets are provided for values which fall below the minimum and above the maximum values.

Examples

The following example shows how to configure buckets for a Bulkstat data group:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
Device(config-bs-dg-proc)# buckets 10
```

Related Commands

Command	Description
process	Configures process-related parameters for a Bulkstat data group.

bulkstat data

To configure a Bulkstat command, expression, and Simple Network Management Protocol (SNMP) data set, use the **bulkstat data** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat data *data-set-name* **type**{**command**| **expression**| **snmp**}

no bulkstat data *data-set-name*

Syntax Description

data-set-name	Name of a data set. Data sets across different types can have the same name.
type	Specifies the type of data set.
command	Creates a Bulkstat command data set.
expression	Creates a Bulkstat expression data set.
snmp	Creates a Bulkstat SNMP data set.

Command Default

By default, data sets are not created to collect command, expression, and SNMP data in the Bulkstat client application.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **bulkstat data** command to create a data set with a given name and type and enter Bulkstat data set command configuration mode.

Examples

The following example shows how to configure a Bulkstat command data set named show-snmp:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data show-snmp type command
```

The following example shows how to configure a Bulkstat expression data set named interface-util:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
```

The following example shows how to configure a Bulkstat SNMP data set named interface-stats:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-stats type snmp
```

bulkstat data-group

To configure a Bulkstat data group, use the **bulkstat data-group** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat data-group *data-group-name*

no bulkstat data-group *data-group-name*

Syntax Description

data-group-name	Name of a Bulkstat data group. The string is case sensitive.

Command Default

Bulkstat data groups are not created by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

A Bulkstat data group can be linked to only one profile. A data group is used to group a data list, filter list, and instance list and specify processing options. This command also allows you to enter the Bulkstat data group configuration mode.

Examples

The following example shows how to configure a Bulkstat data group named if-dg:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-group if-dg
```

Related Commands

Command	Description
collect	Configures collection parameters for a Bulkstat data group.
context	Configures a context for a Bulkstat data group.

Command	Description
discard	Discards the raw data collected for a Bulkstat data group.
enable	Enables a Bulkstat profile for collection and transfer of data.
interval polling	Configures interval parameters for a Bulkstat data group.
process	Configures process-related parameters for a Bulkstat data group.

bulkstat filter

To configure a Bulkstat filter set, use the **bulkstat filter** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat filter *filter-set-name*

no bulkstat filter *filter-set-name*

Syntax Description

filter-set-name	Name of a Bulkstat filter set.

Command Default

By default, a Bulkstat filter set is not configured for a Bulkstat object.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **bulkstat filter** command to link a Bulkstat data set to one or more Bulkstat data groups and enter Bulkstat filter configuration mode.

Examples

The following example shows how to configure the Bulkstat filter set named vlanfilter:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat filter vlanfilter
```

Related Commands

Command	Description
match (bulkstat)	Configures a Bulkstat filter set to match the value of an object during data collection.

bulkstat instance

To configure a Bulkstat instance set for a data source, use the **bulkstat instance** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat instance *instance-set-name* **type snmp**

no bulkstat instance *instance-set-name*

Syntax Description

instance-set-name	Name of an instance set. Instance sets across different types can have the same name.
type snmp	Specifies the type of instance set is SNMP.

Command Default

By default, instance sets are not configured for Bulkstat data.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **bulkstat instance** command to specify the instances for which data should be collected and enter Bulkstat instance configuration mode. Currently, SNMP is the only instance set type that is supported.

Examples

The following example shows how to configure Bulkstat SNMP instance set type named exact:

```
Device> enable
Device# configuring terminal
Device(config)# bulkstat instance exact type snmp
```

Related Commands

Command	Description
exact	Configures Bulkstat SNMP exact instance.
range	Configures Bulkstat SNMP range instance.

Command	Description
repetition	Configures Bulkstat SNMP repetition instance.
wildcard	Configures Bulkstat SNMP wildcard instance.

bulkstat profile

To enable or disable the profile data-collection and transfer, use the **bulkstat profile** command in privileged EXEC mode.

bulkstat profile *bulkstat-profile-name* {**disable** | [**force**]| **enable** | [**onetime**| **recurring**| **repeat** *number*]}

Syntax Description

profile *bulkstat-profile-name*	Specifies the name of the Bulkstat profile configured.
disable	Disables the profile collection. All process data will be return into process file and queued for transfer.
force	Disables the profile collection. All retained files will be deleted and transfer operation will be stopped.
enable	Enables the profile collection and transfer.
onetime	Specifies that the data is collected once. Data for all data-groups in profile will be collected once and the file will be frozen and queued for transfer.
recurring	Specifies that the data is collected repeatedly until the profile is disabled.
repeat *number*	Specifies that the data is collected repeatedly for the specified number of recurrences.

Command Default

By default, the Bulkstat profile is not enabled for data collection and transfer.

Command Modes

Privileged EXEC(#)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Examples

The following example shows how to enable a Bulkstat profile named if-stats repeatedly for 100 recurrences:

```
Device> enable
Device# bulkstat profile if-stats enable repeat 100
```

Related Commands

Command	Description
bulkstat profile (global)	Configure a Bulkstat profile in global configuration mode.

bulkstat profile (global)

To configure a Bulkstat profile, use the **bulkstat profile** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat profile *bulkstat-profile-name*

no bulkstat profile *bulkstat-profile-name*

Syntax Description

bulkstat-profile-name	The name of a Bulkstat profile configured.

Command Default

By default, Bulkstat profiles are not created.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

A Bulkstat profile is used to group multiple data groups to simplify configuration as well as aggregate data of a similar nature. Use the **bulkstat profile** command to enter Bulkstat profile configuration mode.

Examples

The following example shows how to configure a Bulkstat profile named if-stats:

```
Device> enable
Device# configure terminal
Device(config)#  bulkstat profile if-stats
```

Related Commands

Command	Description
data-group	Adds a data group to a Bulkstat profile.
file	Configures file-related parameters for a Bulkstat profile.

Command	Description
flow	Configures the flow exporter configuration for a Bulkstat profile.
interval	Configures the interval parameters for a Bulkstat data group.

bulkstat resource limit

To configure the limit for resource memory usage, use the **bulkstat resource limit** command in global configuration mode. To reset the memory usage limit to the default value, use the **no** form of this command.

bulkstat resource limit memory *memory-usage-percentage*

no bulkstat resource limit memory

Syntax Description

memory *memory-usage-percentage*	Specifies the memory resource limit as a percentage. The default value is 95 percentage of available memory resource. The range is from 20 to 100 percentage. Bulkstat deactivates all profiles if the remaining memory is less than the specified limit.

Command Default

The resource limit for memory usage is not configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure the limit for resource memory usage to 40 percent of the total memory available:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat resource limit memory 40
```

bulkstat schedule

To configure the Bulkstat calendar scheduler to enable data collection, use the **bulkstat schedule** command in global configuration mode. To remove the configuration, use the **no** form of this command.

bulkstat schedule *schedule-name* **at** *time-of-day* {*date* | *day* | *month* | {**oneshot** | **recurring**}}

bulkstat schedule *schedule-name*

Syntax Description

schedule-name	Name of calendar.
at	Specifies the collection conditions for raw or processed data.
time-of-day	Time of data collection in hours and minutes. The time entered must be in 24-hour format, hh:mm, and the colon is required.
date	Day of the month, entered as a number. The range is from 1 to 31.
day	Day of the week, entered in lowercase and abbreviated to the first three alphabets. For example, mon, tue, and so on.
month	Month of the year, entered in lowercase and abbreviated to the first three alphabets. For example, jan, feb, and so on.
oneshot	Specifies that the Bulkstat data collection occurs only once.
recurring	Specifies that the Bulkstat data collection occurs repeatedly at the conditions set.

Command Default

The Bulkstat calendar schedule is not configured by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use this command to schedule a one-time or repeated Bulkstat data collection occurrence and enter Bulkstat schedule configuration.

Examples

The following example shows how to configure a Bulkstat calendar schedule named mycal:

```
Device> enable
Device# configuring terminal
Device(config)# bulkstat schedule mycal at 18:30 feb 05 oneshot
```

Related Commands

Command	Description
profile	Schedules data collection on Bulkstat profiles.

clear

To clear counters set for both baseline and distribution processed data, use the **clear** command in Bulkstat data group process configuration mode. To remove the conditions set to clear the counters, use the **no** form of this command

clear {**sample** *number-of-samples*| **time** *number-of-hours*}

no clear {**sample**| **time**}

Syntax Description

sample *number-of-samples*	Number of samples after which processed data is cleared. The range is from 100 to 65536.
time *number-of-hours*	Time duration after which the processed data is cleared. The range is from 1 to 48 hours.

Command Default

By default, counters are not configured to clear the processed data.

Command Modes

Bulkstat data group process configuration (config-bs-dg-proc)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure counters for clearing baseline and distribution processed data:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
Device(config-bs-dg-proc)# clear sample 1000
```

collect

To configure data set, instance set, and filter set collection parameters for Bulkstat command, expression, or Simple Network Monitoring Protocol (SNMP) data group, use the **collect** command in Bulkstat data group configuration mode. To remove the configuration, use the **no** form of this command.

collect type {**command| expression| snmp**}{**data** *data-set-name* **instance** *instance-set-name* **filter** *filter-set-name*}

no collect

Syntax Description

type	Specifies the type of data.
command	Configures the data set and filter set collection parameters for Bulkstat command data group.
expression	Configures the data set and filter set collection parameters for Bulkstat expression data group.
snmp	Configures the data set, instance set, and filter set collection parameters for Bulkstat SNMP data group.
data *data-set-name*	Specifies the data set and name of the data set for the objects in a data group being configured.
instance *instance-set-name*	Specifies the instance set and name of the instance set for objects in a data group being configured.
filter *filter-set-name*	(Optional) Specifies the filter set and name of the filter set for the objects in a data group being configured.

Command Default

Collection parameters for a data group are not configured.

Command Modes

Bulkstat data group configuration mode (config-bs-dg)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure data set, instance set, and filter set collection parameters for Bulkstat SNMP data group named if-dg:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-group if-dg
Device(config-bs-dg)# collect type snmp data interfacestats instance ins-exact filter ifType
```

Related Commands

Command	Description
context	Configures the context for a Bulkstat data group.
discard	Discards raw data for a Bulkstat data group.
interval	Configures interval parameters for a Bulkstat data group.
process	Configures process-related parameters for a Bulkstat data group.

conditional object

To define a conditional object when evaluating an expression, use the **conditional object** command in expression object configuration mode. To disable the configured settings, use the **no** form of this command.

conditional object *conditional-object-id* [**wildcard**]

no conditional object

Syntax Description

conditional-object-id	Conditional object identifier for evaluating the expression. • Conditional object identifiers are specified as a numeric value in dotted decimal format or as an object descriptor.
wildcard	(Optional) Enables a wildcard search for conditional object identifiers.

Command Default

By default, conditional object identifiers are not defined.

Command Modes

Expression object configuration (config-expression-object)

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History

Release	Modification
12.4(20)T	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
Cisco IOS XE Release 3.1S	This command was integrated into Cisco IOS XE Release 3.1S.
12.2(50)SY	This command was integrated into Cisco IOS Release 12.2(50)SY.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.

Usage Guidelines

An object identifier specifies the instance of an object to consider while evaluating an expression. If an object does not have an instance, the value specified for the object identifier will not be used. Conditional objects determine the use of the value specified for the object identifier.

Examples

The following example shows how to define a conditional object in expression object configuration mode:

```
Device(config)# snmp mib expression owner owner1 name Expression1
Device(config-expression)# object 32
Device(config-expression-object)# conditional object
mib-2.90.1.3.1.1.2.3.112.99.110.4.101.120.112.53
Device(config-expression-object)# end
```

The following example shows how to enable a wildcard search for the conditional object identifier mib-2.5 in expression object configuration mode:

```
Device(config-expression-object)# conditional object mib-2.5 wildcard
Device(config-expression-object)# end
```

The following example shows how to define a conditional object ifDesc in Bulkstat data set expression object configuration mode:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data dataSet type expression
Device(config-bs-ds-expr)# object 1
Device(config-bs-ds-expr-obj)# conditional object ifDesc
```

Related Commands

Command	Description
snmp mib expression owner	Specifies the owner of an SNMP expression.
object (expression)	Specifies the objects to be used while evaluating an SNMP expression.

context (Bulkstat)

To configure a Simple Network Management Protocol (SNMP) context for a Bulkstat data group, use the **context** command in Bulkstat data group configuration mode. To remove the configuration, use the **no** form of this command.

context *context-name*

no context

Syntax Description

context-name	Object defined by the object cdcDGContextName, Cisco Data Collection Data Group Context Name, as the SNMP context name in which to collect data.

Command Default

No SNMP context is associated with a Bulkstat data group.

Command Modes

Bulkstat data group configuration (config-bs-dg)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure an SNMP context for a Bulkstat data group named ctx-name:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-group if-dg
Device(config-bs-dg)# context ctx-name
```

Related Commands

Command	Description
collect	Configures collection parameters for a Bulkstat data group.
discard	Discards raw data for a Bulkstat data group.

Command	Description
interval polling	Configures interval parameters for a Bulkstat data group.
process	Configures process–related parameters for a Bulkstat data group.

data-group

To add a data group to a Bulkstat profile, use the **data-group** command in Bulkstat profile configuration mode. To remove a data group from a profile, use the **no** form of this command.

data-group *data-group-name*

no data-group *data-group-name*

Syntax Description

data-group-name	Name of a data group as defined by the SNMP object, cdcDGVFileIndex. The data group must be configured before adding it to the Bulkstat profile.

Command Default

A data group is not configured in the Bulkstat profile.

Command Modes

Bulkstat profile configuration (config-bs-profile)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

You can add one or more data groups to a profile, but a data group can be linked to only one data profile.

Examples

The following example shows how to add a data group to a Bulkstat profile:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat profile ifstats
Device(config-bs-profile)# data-group if-dg
```

Related Commands

Command	Description
bulkstat profile	Configures a Bulkstat profile.
file	Configures file-related parameters for a Bulkstat profile.

Command	Description
flow exporter	Configures the flow exporter configuration for a Bulkstat profile.
interval polling	Configures interval parameters for a Bulkstat data group.

discard

To discard raw data for a Bulkstat data group, use the **discard** command in Bulkstat data group configuration mode. To reenable storing raw data for a data group, use the **no** form of this command.

discard

no discard

Syntax Description

This command has no keywords or arguments.

Command Default

Raw data for a Bulkstat data group is stored by default.

Command Modes

Bulkstat data group configuration (config-bs-dg)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **discard** command to discard raw collected data and if processing or thresholding is enabled.

Examples

The following example shows how to discard raw data for a Bulkstat data group:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-group if-dg
Device(config-bs-dg)# discard
```

Related Commands

Command	Description
collect	Configures the collection parameters for a Bulkstat data group.
context	Configures the context for a Bulkstat data group.
interval polling	Configures the interval parameters for a Bulkstat data group.

Command	Description
process	Configures process–related parameters for a Bulkstat data group.

discontinuity object (Bulkstat)

To configure the discontinuity properties for evaluation of an expression MIB object, use the **discontinuity object** command in Bulkstat data set expression object configuration mode. To disable the configuration settings, use the **no** form of this command.

discontinuity object *discontinuity-object-id* **[wildcard]** [**type** {**timeticks**| **timestamp**| **date-and-time**}]

no discontinuity object

Syntax Description

discontinuity-object-id	Discontinuity object identifier to identify discontinuity in a counter. • The default object identifier is sysUpTime.0.
wildcard	(Optional) Enables a wildcard search for Bulkstat objects with discontinuity properties. • By default, the object identifier is fully specified.
type	(Optional) Specifies the type of discontinuity in a counter. • The default value for the discontinuity type is timeticks.
timeticks	(Optional) Specifies timeticks for discontinuity in a counter.
timestamp	(Optional) Specifies the time stamp for discontinuity in a counter.
date-and-time	(Optional) Specifies the date and time of discontinuity in a counter.

Command Default

The discontinuity properties for evaluation of a Bulkstat object are not configured.

Command Modes

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History

Release	Modification
15.3(1)T	This command was introduced.

Release	Modification
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

The **discontinuity object** command configures discontinuity properties of a Bulkstat object when the object sampling type is delta, or changed.

Examples

The following example shows how to configure discontinuity properties for evaluation of an expression MIB object:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 1.2.3.4.5.6
Device(config-bs-ds-expr-obj)# discontinuity object sysUpTime
```

The **type** keyword sets the value for Bulkstat objects with discontinuity properties. The following example shows the usage of the **type** keyword with the **discontinuity object** command:

```
Device(config-bs-ds-expr-obj)# discontinuity object sysUpTime type timestamp
```

The **wildcard** keyword enables a wildcard search for Bulkstat objects with discontinuity properties. The following example shows the usage of the **wildcard** keyword with the **discontinuity object** command:

```
Device(config-bs-ds-expr-obj)# discontinuity object ifDiscontinuityTime wildcard type
timeticks
```

Related Commands

Command	Description
conditional object	Defines a conditional object when evaluating expression MIB output.
id	Configures the OID for expression MIB output.
sample	Configures an object value to be used in evaluating expression MIB output.
wildcard	Configures wildcard instances of an expression MIB object.

enable (Bulkstat)

To enable a Bulkstat profile for collection and transfer of raw and processed data, use the **enable** command in Bulkstat profile configuration mode. To disable profile collection, use the **no enable** form of this command.

enable

no enable [**force**]

Syntax Description

force	(Optional) Deletes a Bulkstat profile after a file transfer is completed, and if the profile is currently transferring a file.

Command Default

Data groups associated with a Bulkstat profile are not activated for collection.

Command Modes

Bulkstat profile configuration (config-bs-profile)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

You can enable or disable a Bulkstat profile for collection and transfer by doing one of the following:

- Using the **enable** or **no enable** command in Bulkstat profile configuration mode.
- Using a profile action.
- Using calendar scheduling.
- Using the **EXEC** command.

Remember the following when enabling a profile:

- If a Bulkstat profile is enabled using the **enable** command and by using option 2, 3 or 4, it will not be displayed in the running-config file by the process of nonvolatile generation (NVGEN).
- If multiple enabling is done through any of the options above, the last enabling will be considered as the final option. For example, if a Bulkstat profile is enabled through option 1 and again through option 4, then the command will not be NVGENed. But, if the profile is enabled through option 4 and again through option 1, the command will be NVGENed.

- No matter which way the profile is enabled, disabling by any option will disable the profile.

When Bulkstat profile collection is disabled with the **no enable** command, the polling operation for all data groups will be stopped. All stateful data information, including collection options and process, threshold, and collected nontransferred data will be purged. All retained files will be deleted and transfer operations will be stopped.

Examples

The following example shows how to enable a Bulkstat profile for collection and transfer:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat profile ifstats
Device(config-bs-profile)# enable
```

Related Commands

Command	Description
file	Configures all file-related parameters for a Bulkstat profile.
flow exporter	Configures the flow exporter configuration for a Bulkstat profile.
interval	Configures the interval parameters for a Bulkstat profile.

enable (Bulkstat data-group)

To enable percentile and summary processing of data, use the **enable** command in Bulkstat data group process configuration mode. To disable processing, use the **no** form of this command.

enable {**percentile**| **summary**}

no enable {**percentile**| **summary**}

Syntax Description

percentile	Enables percentile value computation.
summary	Enables summary processing.

Command Default

By default, percentile and summary processing of data is not enabled.

Command Modes

Bulkstat data group process configuration (config-bs-dg-proc)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Enables both percentile and summary processing of the data marked to be processed in the corresponding data-set configuration.

Examples

The following example shows how to enable percentile processing of data:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
Device(config-bs-dg-proc)# enable percentile
```

exact

To configure an exact instance at which data should be collected for a Simple Network Management Protocol (SNMP) object, use the **exact** command in Bulkstat snmp instance configuration mode. To remove the configuration, use the **no** form of this command.

exact {**oid** *oid*| **interface** *interface-id* [**sub-if**]}

no exact {**oid** *oid*| **interface** *interface-id* [**sub-if**]}

Syntax Description

oid *oid*	Specifies an exact instance identifier in object identifier (OID) format. The object is defined by cdcDGInstanceOid.
interface *interface-id*	Specifies an interface name.
sub-if	(Optional) Specifies to include all subinterfaces under the specified main interface.

Command Default

By default, the exact instance for data collection is not configured.

Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure an exact instance with a specified OID of 1.2.3:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance inst-set type snmp
Device(config-bs-is-snmp)# exact oid 1.2.3
```

The following example shows how to configure an exact instance for an Ethernet interface:

```
Device(config-bs-is-snmp)# exact interface Ethernet0/0 sub-if
```

Related Commands

Command	Description
range	Configures a range instance.
repetition	Configures a repetition instance.
wildcard	Configures a wildcard instance.

expression

To configure expression MIB output, use the **expression** command in Bulkstat data set expression configuration mode. To remove the configuration, use the **no** form of this command.

expression *expression-line*

no expression *expression-line*

Syntax Description

expression-line	Expression as defined by the Simple Network Management Protocol (SNMP) object expExpression in *RFC 2982*, *Distributed Management Expression MIB*.

Command Default

By default, the expression for which the output needs to be collected is not configured.

Command Modes

Bulkstat data set expression configuration (config-bs-ds-expr)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **expression** command to add an expression object to a data set.

Note The expressions are in ANSI C syntax. However, the variables in an expression are defined as a combination of the dollar sign ($) and an integer that corresponds to the object number of the object used in evaluating the expression.

Examples

The following example shows how to configure expression MIB output:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# expression $1+$2
```

Related Commands

Command	Description
object (Bulkstat)	Configures the objects to be used while evaluating a Bulkstat MIB expression.

file

To configure file-related parameters for a Bulkstat profile, use the **file** command in Bulkstat profile configuration mode. To reset or remove the file-related parameters, use the **no** form of this command.

file{**format schemaAscii**| **retain**{**disk** *url*| **memory** *time*}| **size** *bytes*| **transfer**{**retry** *number*| **url**{**primary**| **secondary**}*url*}}

no file{**format schemaAscii**| **retain**| **size**| **transfer**{**retry**| **url**{**primary**| **secondary**}}}

Syntax Description

format	Configures the file data format as defined by the Simple Network Management Protocol (SNMP) object, cdcVFileFormat.
schemaAscii	Specifies that the ASCII format is supported with additional bulk statistics schema tags.
retain	Configures the retention location and interval in the local system memory and the NVRAM for Bulkstat files.
disk *url*	Specifies that the the Bulkstat profile file needs to be retained at the location specified. The locations can be configured as follows: • disk0: Transfer to a rotating disk media. • disk1: Transfer to a secondary rotating disk media. • unix: Transfer to a UNIX file system.
memory *time*	Specifies that the the Bulkstat profile file needs to be retained at local system memory and configures the retention period of a Bulkstat file in seconds. The range is from 0 to 1200000.
size *bytes*	Configures the maximum buffer size, in bytes. The default value is 2048.
transfer	Configures the file-related parameter for a profile.
retry *number*	Configures the number of times to retry a transfer in case of transfer failure to both primary and secondary URLs. If the retain command is not configured, no retries will be attempted. Number of times the file transfer is tried. The range is from 0 to 100.
url	Specifies the file transfer URL configuration.
primary	Name of the URL to be used first for transferring bulk statistics.

secondary	Name of the URL to be used for bulk statistics transfer attempts if the transfer to the primary URL is not successful.
url	Destination URL address for bulk-statistics file storage. • disk0: Transfer to a rotating disk media. • disk1: Transfer to a secondary rotating disk media. • ftp: Transfer to a FTP network server. • http: Transfer to a web browser. • null: Null destination for copies. You can copy a remote file to null to determine its size. • nvram: Transfer to NVRAM. This is the default location for the running-configuration file. • rcp: Transfer to a remote copy protocol (RCP) network server. • system: Transfer to local file system. • tftp: Transfer to a TFTP server. • tmpsys: Transfer to a temporary file system. • unix: Transfer to a UNIX file system.

Command Default

Bulkstat profile file parameters are not configured.

Command Modes

Bulkstat profile configuration (config-bs-profile)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example show how to configure schema format for a Bulkstat profile:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat profile ifStasts
Device(config-bs-profile)# file format schemaAscii
```

The following example show how to configure file retention location and time for retention for a Bulkstat profile:

```
Device(config-bs-profile)# file retain memory 1000
```

The following example show how to configure file transfer properties for a Bulkstat profile:

```
Device(config-bs-profile)# file transfer url primary tftp://10.0.0.1/dcm/cpu-stats
```

Related Commands

Command	Description
data-group	Configures a data group in a Bulkstat data profile.
enable	Enables a Bulkstat data profile for collection and transfer of raw data.
flow	Configures a flow exporter for a Bulkstat data profile.
interval transfer	Configures the interval transfer parameters for a Bulkstat data profile.

flow exporter (Bulkstat)

To configure a Flexible NetFlow flow exporter for a Bulkstat profile, use the **flow exporter** command in Bulkstat profile configuration mode. To remove the configuration, use the **no** form of this command.

flow exporter *exporter-name*

no flow exporter *exporter-name*

Syntax Description

exporter-name	Name of the exporter used to configure the flow exporter.

Command Default

By default, Flexible NetFlow flow exporters are not present in the configuration.

Command Modes

Bulkstat profile configuration (config-bs-profile)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Define Flexible NetFlow flow exporter using global flow configuration commands.

Examples

The following example shows how to configure a flow exporter for a Bulkstat profile:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat profile if-stats
Device(config-bs-profile)# flow exporter mynetflow
```

Related Commands

Command	Description
data-group	Adds a data group to a Bulkstat profile.
enable	Enables a Bulkstat profile for collection and transfer of raw and processed data.

Command	Description
file	Configures file-related parameters for a Bulkstat profile.
interval transfer	Configures interval transfer parameters for a Bulkstat data profile.

id (Bulkstat)

To configure the object ID (OID) for an expression object, use the **id** command in Bulkstat data set expression object configuration mode. To remove the OID configuration, use the **no** form of this command.

id *object-id*

no id *object-id*

Syntax Description

object–id	Name of the object. For example, it may be 1.3.6.1.2.1.2.2.1.10, ifInOctets, or ifEntry.10, whichever is understood by the Simple Network Management Protocol (SNMP) agent. The object is defined by expObjectID in *RFC 2982, Distributed Management Expression MIB*.

Command Default

By default, the OID is not configured.

Command Modes

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

You cannot check for validity of an object during the configuration of an OID for an expression object. If the object is not supported, the expression evaluation fails.

Examples

The following example shows how to configure the OID for an expression object:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 1
Device(config-bs-ds-expr-obj)# id ifInOctets.1
```

Related Commands

Command	Description
expression	Configures expression MIB output.
object (Bulkstat)	Adds an object in an SNMP type Bulkstat data set.
value type	Configures the result of a value type data set expression output.

interval polling

To configure polling interval parameters for a Bulkstat data group, use the **interval polling** command in Bulkstat data group configuration mode. To reset the interval parameters to the default value, use the **no** form of this command.

interval polling *polling-interval*

no interval polling

Syntax Description

polling-interval	Polling period, in seconds. The range is from 1—120000. The default value is 600.

Command Default

By default, polling interval parameters for a Bulkstat data group are not configured.

Command Modes

Bulkstat data group configuration (config-bs-dg)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure polling interval parameters for a Bulkstat data group:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-group if-dg
Device(config-bs-dg)# interval polling 100
```

Related Commands

Command	Description
collect	Configures collection parameters for a Bulkstat data group.
context	Configures the context for a Bulkstat data group.
discard	Discards raw data for a Bulkstat data group.

Command	Description
process	Configures process-related parameters for a Bulkstat data group.

interval transfer

To configure interval parameters for a Bulkstat data profile, use the **interval transfer** command in Bulkstat data profile configuration mode. To reset the interval parameters to the default value, use the **no** form of this command.

interval transfer {**process| raw**} {*time-seconds*}

no interval transfer {**process| raw**} {*time-seconds*}

Syntax Description

process	Creates process files for the processed data and lists the process files for transfer.
raw	Freezes the active file (raw data) and enqueues the file for transfer. Object is defined by cdcVFileCollectionPeriod.
time-seconds	Data transfer period, in seconds. Processed data: The range is from 1800—604800. The default value is 3600. Raw data: The range is from 160—4294967. The default value is 1800.

Command Default

By default, the interval for transferring processed data and raw data is set to 3600 seconds and 1800 seconds, respectively.

Command Modes

Bulkstat data profile configuration (config-bs-profile)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure interval parameters for processed data transfer in a Bulkstat data profile:

```
Device> enable
Device# configure terminal
```

```
Device(config)# bulkstat profile is-stats
Device#(config-bs-profile)# interval transfer process 4000
```

The following example shows how to configure interval parameters for raw data transfer in a Bulkstat data profile:

```
Device#(config-bs-profile)# interval transfer raw 100
```

Related Commands

Command	Description
bulkstat profile	Configures a Bulkstat profile.
data-group	Adds a data group to a Bulkstat profile.
file	Configures file-related parameters for a Bulkstat profile.
flow exporter	Configures the flow exporter configuration for a Bulkstat profile.

match though wildcard

match (Bulkstat)

To configure a filter set for an object in the Bulkstat Simple Network Management Protocol (SNMP) data set during collection, use the **match** command in Bulkstat filter configuration mode. To remove a filter set from the data set, use the **no** form of this command.

match *object-name* {**eq**| **start**| **not**| {**eq**| **start**}}{*line*}

no match *object-name*

Syntax Description

object-name	Object name for which the filter is applied. The name must match the name of the object configured in the **bulkstat data** command.
eq	Matches numeric and string values defined in the object.
start	Matches only the string value defined in the object. If there is a numeric data type in the object, this may result in the filter not operating.
not	Performs a logical NOT operation on the conditions set.
line	Comma-separated value list. If the list is a string, specify the string in quotation marks.

Command Default

By default, a filter set is not configured in the Bulkstat SNMP data set.

Command Modes

Bulkstat filter configuration (config-bs-filter)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

More than one value can be specified for an object and more than one object can have match values. Currently this configuration is supported only for SNMP objects.

Note The object for which a filter is applied, should be a name configured with the **bulkstat data** command.

Examples

The following example shows how to configure a Bulkstat filter set for an object:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat filter ifType
Device(config-bs-filter)# match ifType eq 131,132,100
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat data set for command, expression, and Simple Network Management Protocol (SNMP) elements.
bulkstat filter	Configures a Bulkstat filter set.

object (Bulkstat data-group)

To process a Bulkstat data-group object and configure object specific parameters, use **object** command. To remove object specific parameters, use the **no** form of this command.

object *object-name* **sample** {**absolute**| **delta**}

no object *object-name*

Syntax Description

object-name	Name of the object
sample	Specifies whether the processing is done on absolute or delta values.
absolute	Processes absolute values for this object.
delta	Processes delta values for this object.

Command Default

By default, object specific parameters of a Bulkstat data-group are not configured.

Command Modes

Bulkstat data group process configuration (config-bs-dg-proc)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to process absolute values for the Bulkstat data-group object:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
Device(config-bs-dg-proc)# object BSObject sample absolute
```

object (Bulkstat expression)

To configure Bulkstat expression objects, use the **object** command in Bulkstat data set expression configuration mode. To remove the configuration, use the **no** form of this command.

object *object-number*

no object *object-number*

Syntax Description

object-number	Object number in a Bulkstat expression. **Note** If the expression is "$1+$2", then object 1 refers to the object at $1. If an object is specified with a number that is not mentioned in the expression, the configuration succeeds, but the object is not used in the evaluation of the expression type.

Command Default

By default, Bulkstat expression objects are not configured.

Command Modes

Bulkstat data set expression configuration (config-bs-ds-expr)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

If the **object** command is used and the object is already configured, the execution results in setting the context to the existing object, and the command mode switches to the Bulkstat data set expression object configuration mode.

Examples

The following example shows how to configure an object for a Bulkstat expression using the **object** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 1
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat data set for command, expression, and SNMP type of elements.

object (Bulkstat SNMP)

To add an object inside a Bulkstat Simple Network Management Protocol (SNMP) data set, use the **object** command in Bulkstat data set SNMP configuration mode. To remove an object from a Bulkstat SNMP data set, use the **no** form of this command.

object *oid* [**alias** *alias-name*]

no object *oid*

Syntax Description

oid	The object identifier. Dotted notation OID format is always expected to be understood by the agent if the object is supported. If the specified object is not understood by the agent, then this command will not be accepted. The object is defined by cdcDGBaseObjectSubtree.
alias *alias-name*	(Optional) Specifies an optional name to be associated with the object. Specify an alias-name, if the agent can only understand the dotted notation OID. This name is used to represent the object in the file containing the collected data.

Command Default

By default, an object in the SNMP data set is not configured.

Command Modes

Bulkstat data set snmp configuration (config-bs-ds-snmp)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

If the object is already present in the data set, execution of the **object** command in Bulkstat data set SNMP configuration mode replaces the old object configuration with the new configuration.

Examples

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-stats type snmp
Device(config-bs-ds-snmp)# object 1.3.6.1.2.1.2.2.1.10 alias ifInOctets
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat data set.

process

To configure process-related parameters for a Bulkstat data group, use the **process** command in Bulkstat data group configuration mode. To remove process-related parameters, use the **no** form of this command.

process

no process

Syntax Description

This command has no keywords or arguments.

Command Default

By default, process-related parameters are not configured for a Bulkstat data group.

Command Modes

Bulkstat data group configuration (config-bs-dg)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Execution of the **process** command results in a configuration change and replaces any existing configuration.

Examples

The following example shows how to configure process–related parameters for a Bulkstat data group:

```
Device> enable
Device# configure terminal
Device# bulkstat data-group dg-name
Device(config-bs-dg)# process
```

Related Commands

Command	Description
collect	Configures collection parameters for a Bulkstat data group.
context	Configures the context for a Bulkstat data group.
discard	Discards raw data for a Bulkstat data group.
interval	Configures interval parameters for a Bulkstat data group.

profile

To schedule data collection on Bulkstat profiles, use the **profile** command in Bulkstat schedule configuration mode. To stop data collection, use the **no** form of this command.

profile *bulkstat-profile-name* {**start**{**oneshot**| **recurring**}| **stop**}

no profile *bulkstat-profile-name*

Syntax Description

bulkstat-profile-name	Bulkstat profile name, which is created using the **bulkstat profile** command.
start	Specifies that data collection should start for a particular Bulkstat profile.
oneshot	Specifies that data collection occurs only once.
recurring	Specifies that data collection occurs repeatedly according to the conditions set.
stop	Specifies that data collection should stop for a particular Bulkstat profile.

Command Default

By default, data collection is not enabled on Bulkstat profiles.

Command Modes

Bulkstat schedule configuration (config-bs-schedule)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Use the **profile** command to start scheduled data collection for specific Bulkstat profiles. You can enable multiple profiles for data collection.

Examples

The following example shows how to start and stop data collection on multiple Bulkstat profiles using the **profile** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat schedule mycal at 08:00 feb 05 oneshot
Device(config-bs-schedule)# profile snmp_profile start recurring
```

```
Device(config-bs-schedule)# profile cli_profile start recurring
Device(config-bs-schedule)# profile exp_profile start recurring

Device(config)# bulkstat schedule mycal at 22:00 feb 05 oneshot
Device(config-bs-schedule)# profile snmp_profile stop
Device(config-bs-schedule)# profile cli_profile stop
Device(config-bs-schedule)# profile exp_profile stop
```

Related Commands

Command	Description
bulkstat profile	Configures a Bulkstat profile.
bulkstat schedule	Configures a Bulkstat calendar scheduler to enable data collection.

range

To configure a range instance for a Bulkstat Simple Network Management Protocol (SNMP) instance set, use the **range** command in the Bulkstat Simple Network Management Protocol (SNMP) instance set configuration mode. To remove a range instance from Bulkstat SNMP instance set, use the **no** form of this command.

range start *oid* **end** *oid*

no range start *oid* **end** *oid*

Syntax Description

start *oid*	Specifies the start of a range instance. Object identifier. This object is defined by cdcDGInstanceOid (Cisco Data Collection Data Group Instance Oid).
end *oid*	Specifies the end of a range instance. Object identifier. This object is defined by cdcDGInstanceOid (Cisco Data Collection Data Group Instance Oid).

Command Default

By default, a range instance is not configured for a Bulkstat SNMP instance set.

Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

You can configure multiple of ranges in the same instance set. However, overlapping instances should be avoided because the system will not check for overlapping instance configurations and all instances within the range, including the start and end will be collected.

Examples

The following example shows how to configure a range instance using the **range** command:

```
Device> enable
Device# configure treminal
Device(config)# bulkstat instance exact type snmp
Device(bs-is-snmp)# range start 1.2.3.4 end 1.2.3.6
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat data set for SNMP.
exact	Configures an exact instance in a Bulkstat SNMP instance set.
wildcard	Configures a wildcard instance in a Bulkstat SNMP instance set.

repetition

To configure a repetition instance for a Bulkstat Simple Network Management Protocol (SNMP) instance set, use the **repetition** command in Bulkstat instance SNMP configuration mode. To remove the repetition instance, use the **no** form of this command.

repetition oid *oid* **max** *max_repetition_value*

no repetition oid *oid*

Syntax Description

oid *oid*	Specifies an object identifier (OID) in dotted decimal notation. The object is defined by cdcDGInstanceOid..
max *max_repetition_value*	Specifies the maximum number of repetitions. Maximum repetition value. The range is from 1 to 2147483647. This object is defined by cdcDGInstanceNumRepititions.

Command Default

By default, repetition instance values are not configured.

Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

You can configure multiple repetitions of the same instance set, but they should be avoided because the system will not check for overlapping instance configurations.

Examples

The following example shows how to configure a repetition instance using the **repetition** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance exact type snmp
Device(config-bs-is-snmp)# repetition oid 1.2.3.4 max 12
```

Related Commands

Command	Description
exact	Configures an exact instance in an instance set.
range	Configures a range instance in an instance set.
wildcard	Configures a wildcard instance in an instance set.

sample (Bulkstat)

To configure an object value to be used in evaluating expression MIB output, use the **sample** command in Bulkstat data set expression object configuration mode. To remove the configuration, use the **no** form of this command.

sample{**absolute**| **changed**| **delta**}

no sample

Syntax Description

sample	Specifies the sampling type—absolute or changed or delta. Object is defined by expObjectSampleType in *RFC 2982, Distributed Management Expression MIB*.
absolute	Returns a value of the MIB object at the time it is sampled.
changed	Returns a Boolean value that indicates whether the object has changed value since the last sampling.
delta	Returns a difference in value from one sampling to the next sampling.

Command Default

This command has no default behavior.

Command Modes

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure object value to be used in evaluating expression output MIB using the **sample** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data-set expression
Device(config-bs-ds-expr)# object 1
Device(config-bs-ds-expr-obj)# sample delta
```

Related Commands

Command	Description
conditional object	Configures conditional evaluation of a data set of expression output.
discontinuity object	Configures discontinuity behaviors for Bulkstat data set expression output.
id	Configures an object ID for expression output.
wildcard	Computes the expression for all instances of an object.

show bulkstat data-group

To display the details of the Data Collection Manager (DCM) data-group configured by the user, use the **show bulkstat data-group** command in privileged EXEC mode.

show bulkstat data-group [**process** | [**object** *object-name*| **index** *ndex-value*| **distribution**| **summary**| **percentile** *value*]]

Syntax Description

data-group-name	Specifies the name of the data-group.
process	Displays processing data.
object *object-name*	Displays processed data of the specified object.
index *index-value*	Displays processed data of the specified object's index or instance.
distribution	Displays distribution data.
summary	Displays summary data.
percentile *value*	Displays percentile data and percentile value for a specified number.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows the results of the **show bulkstat data-group** command for the data-group *BSDataGroup* configured by the user:

```
Device> enable
Device#  show bulkstat data-group BSDataGroup process distribution
```

```
Data-Group BSDataGroup Process data

Objectname       : 1.3.6.1.2.1.2.2.1.16

Number of samples: 9

Distribution Data:
* Buckets with no data are not shown

Instance     Number of    Range               Range
             buckets      start               end
-----------------------------------------------------------
436752384      250          0               4294967295

Bucket     Bucket         Bucket              Count
Index      Start          End
-----------------------------------------------------------
1          0.000        17179869.180            9
```

The table below describes the significant fields shown in the output.

Table 1: show bulkstat data-group Field Descriptions

Field	Description
Objectname	Indicates the name of the object configured in DCM.
Number of samples	Indicates the number of samples polled.
Instance	Indicates the object instance for the above object name.
Number of buckets	Indicates the number of buckets configured in which the values of the object are saved when distribution or percentile processing is performed.
Range start	Indicates the start range in which the objects value can lie.
Range end	Indicates the end range in which the objects value can lie.
Bucket Index	Indicates the bucket number.
Bucket Start	Indicates the start range of the bucket.
Bucket End	Indicates the end range of the bucket.
Count	Indicates the number of samples in the bucket.

Related Commands

Command	Description
bulkstat profile	Enables or disables the profile collection and transfer from privileged EXEC mode.
show bulkstat pre-defined	Displays the details of pre-defined data-sets, data-groups, and instance-sets in DCM

Command	Description
show bulkstat profile	Displays the details of user-created profiles in DCM.

show bulkstat pre-defined

To display the details of the Data Collection Manager (DCM) predefined data-sets, data-groups, and instance-sets, use the **show bulkstat pre-defined** command in privileged EXEC mode.

show bulkstat pre-defined [**data** *data-set-name*| **data-group** *data-group-name*| **instance** *instance-set-name*]

Syntax Description

data *data-set-name*	Specifies the name of the data-set.
data-group *data-group-name*	Specifies the name of the data-group.
instance *instance-set-name*	Specifies the name of the instance set.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Release 3.3SE	This command was introduced.

Examples

The following is sample output from the **show bulkstat predefined** command. The output is self-explanatory.

```
Device> enable
Device# show bulkstat predefined

bulkstat data _pd_ClientDS type snmp
  object cldcClientWlanProfileName
  object cldcClientProtocol
  object cldcClientWgbStatus
  object cldcClientWgbMacAddress
  object cldcClientCurrentTxRateSet
  object cldcClientLoginTime
  object cldcClientDataRetries
  object cldcClientRtsRetries
bulkstat data _pd_MobileStationDS type snmp
  object bsnMobileStationMacAddress
  object bsnMobileStationIpAddress
  object bsnMobileStationUserName
  object bsnMobileStationAPMacAddr
  object bsnMobileStationAPIfSlotId
  object bsnMobileStationEssIndex
  object bsnMobileStationSsid
  object bsnMobileStationAID
  object bsnMobileStationStatus
  object bsnMobileStationReasonCode
  object bsnMobileStationStatusCode
  object bsnMobileStationMobilityStatus
  object bsnMobileStationAnchorAddress
  object bsnMobileStationAuthenticationAlgorithm
  object bsnMobileStationDeleteAction
  object bsnMobileStationPolicyManagerState
  object bsnMobileStationSecurityPolicyStatus
```

```
  object bsnMobileStationInterface
  object bsnMobileStationWepState
  object bsnMobileStationVlanId
  object bsnMobileStationPolicyType
  object bsnMobileStationEncryptionCypher
  object bsnMobileStationEapType
bulkstat data _pd_MobileStationStatsDS type snmp
  object bsnMobileStationRSSI
  object bsnMobileStationSnr
  object bsnMobileStationBytesSent
  object bsnMobileStationBytesReceived
  object bsnMobileStationPacketsSent
  object bsnMobileStationPacketsReceived
bulkstat instance _pd_wildcardIS type snmp
  wildcard
bulkstat data-group _pd_ClientDG
  collect type snmp data _pd_ClientDS instance _pd_wildcardIS
  interval polling 300
bulkstat data-group _pd_MobileStationDG
  collect type snmp data _pd_MobileStationDS instance _pd_wildcardIS
  interval polling 300
bulkstat data-group _pd_MobileStationStatsDG
  collect type snmp data _pd_MobileStationStatsDS instance _pd_wildcardIS
  interval polling 300
```

Related Commands

Command	Description
show bulkstat data-group	Displays the details of user-created data-groups in DCM.
show bulkstat profile	Displays the details of user-created profiles in DCM.

show bulkstat profile

To display the details of the Data Collection Manager (DCM) profile configured by the user, use the **show bulkstat profile** command in privileged EXEC mode.

show bulkstat profile [**file**| **name** *bulkstat-profile-name*]

Syntax Description

file	Specifies that the details of the file are to be displayed.
name *bulkstat-profile-name*	Specifies the name of the profile.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example displays the details of the profile *pf2* created by the user:

```
Device> enable
Device# show bulkstat profile

Profile Name  : pf2
Admin Status  : Enabled
Enable Reason : Config
Oper Status   : Active

Data-group's in profile:
Name                            Oper State     Repetitions Left
-------------------------------------------------------------------------
_pd_MobileStationStatsDG        Active         -
```

The following example displays the file details of the profile *pf2* created by the user:

```
Device> enable
Device# show bulkstat profile file name pf2

Profile Name                          : pf2
Curr file size                        : 436(bytes)
Time left for raw data transfer       : 66(secs)
```

The table below describes the significant fields shown in the output.

Table 2: show bulkstat profile Field Descriptions

Field	Description
Profile Name	Indicates the name of the profile
Admin Status	Indicates the administrative status of the profile.
Enable Reason	Indicates if the profile is enabled from global configuration mode or privileged EXEC mode.
Oper Status	Indicates the operating status of the profile created by the user.
Name	Indicates the name of the profile
Repetitions Left	Indicates the number of repetitive collections left when you enable the Bulkstat profile using the **bulkstat profile** command from privileged EXEC mode with **repeat** option.
Curr file size	Indicates the size of the file.
Time left for raw data transfer	Indicates the time left for file transfer.

Related Commands

Command	Description
bulkstat profile	Enables or disables the profile collection and transfer from privileged EXEC mode.
show bulkstat data-group	Displays the details of user-created data-groups in DCM.
show bulkstat pre-defined	Displays the details of pre-defined data-sets, data-groups, and instance-sets in DCM.

snmp-server enable

To enable notifications for Bulkstat, use the **snmp-server enable** command in global configuration mode. To remove notification configurations, use the **no** form of this command.

snmp-server enable [**collection**| **transfer**]

Syntax Description

collection	Enables the cdcVFileCollectionErrorEnable object for all profiles.
transfer	Enables the cdcFileXferConfSuccessEnable and cdcFileXferConfFailureEnable objects for all profiles.

Command Default

Notifications are not enabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure notifications for Bulkstat configuration:

```
Device# configure terminal
Device(config)# snmp-server enable traps bulkstat collection transfer
Device(config)# snmp-server enable traps bulkstat transfer
```

value type

To specify the type of bulkstat expression to use during object sampling, use the **value type** command in Bulkstat expression configuration mode. To disable the specified value type, use the **no** form of this command.

value type [**counter32**| **unsigned32**| **timeticks**| **integer32**| **ipaddress**| **octetstring**| **objectid**| **counter64**]

no value type

Syntax Description

counter32	(Optional) Specifies a counter32 value. Counter32 specifies a value that represents a count. The value ranges from 0 to 4,29,49,67,295.
unsigned32	(Optional) Specifies an unsigned integer value. Unsigned32 specifies a value that includes only non-negative integers. The value ranges from 0 to 4294967295.
timeticks	(Optional) Specifies a value based on timeticks. Timeticks represents a non-negative integer value that specifies the elapsed time between two events, in units of hundredth of a second. When objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1), the description of the object type identifies this reference period.
integer32	(Optional) Specifies an integer32 value. The Integer32 represents 32-bit signed integer values for the Simple Network Management Protocol (SNMP). The value range includes both negative and positive numbers.
ipaddress	(Optional) Specifies a value based on the IP address. The IP address is a string of four octets. The IP address value type is generally an IPv4 address. This value is encoded as four bytes in the network byte order.
octetstring	(Optional) Specifies a value based on octetstring. The octetstring specifies octets of binary or textual information. The octet string length ranges from 0 to 65535 octets.
objectid	(Optional) Specifies a value based on the object identifier of an object. Each object type in a MIB is identified by an object identifier value assigned by the administrator. The object identifier identifies the value type that has an assigned object identifier value.
counter64	(Optional) Specifies a counter64 value that represents a count. However, the counter64 value ranges from 0 to 18446744073709551615. This value type is used when a 32-bit counter rollover occurs in less than an hour.

Command Default By default, the value type is not configured.

Command Modes expression configuration (config-expression)

Bulkstat data set expression configuration (config-bs-ds-expr)

Command History

Release	Modification
12.4(20)T	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(50)SY	This command was integrated into Cisco IOS Release 12.2(50)SY.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS Release XE 3.8S	This command was integrated into Cisco IOS Release XE 3.8S.

Usage Guidelines The **value type** command specifies a value for expression evaluation.

Examples The following example shows how to specify the counter32 value type:

```
Device> enable
Device# configure terminal
Device(config)# snmp mib expression owner owner1 name ExpressionA
Device(config-expression)# value type counter32
```

The following example shows how to specify the counter32 value type for Bulkstat expression data set:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# expression 100*$1+$2
Device(config-bs-ds-expr)# value type counter32
```

Related Commands

Command	Description
snmp mib expression owner	Specifies the owner for an expression.
bulkstat data	Configures Bulkstat data set for expression type.

wildcard

To configure a wildcard instance, use the **wildcard** command in Bulkstat instance SNMP configuration mode. To remove a wildcard instance, use the **no** form of this command.

wildcard [**oid** *oid*| **interface** *interface-id* [**sub-if**]]

no wildcard [**oid** *oid*| **interface** *interface-id* [**sub-if**]]

Syntax Description

oid *oid*	Wildcard instance identifier in object identifier format. Object defined by cdcDGInstanceOid.
interface *interface-id*	Specifies the interface name. Choose the interface ID from the list of interface names provided. Use this option only if the objects being retrieved are indexed by ifIndex. This option is provided so that the user need not worry about the persistence of an ifindex value for an interface.
sub-if	(Optional) Specifies that the sub-interfaces under the specified main interface are also included.

Command Default

By default, wildcard instances are not configured for a Bulkstat SNMP data set.

Command Modes

Bulkstat instance snmp configuration (config-bs-is-snmp)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Usage Guidelines

Execution of the **wildcard** command results in the addition of an instance to an existing instance set.

Examples

The following example shows how to specify a wildcard instance for an Ethernet interface:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat instance exact type snmp
Device(config-bs-is-snmp)# wildcard interface Ethernet0/0 sub-if
```

Related Commands

Command	Description
bulkstat data	Configures a Bulkstat data set.

wildcard (Bulkstat expression)

To configure wildcard instances of a Bulkstat expression object, use the **wildcard** command in Bulkstat expression data set configuration mode. To remove the command, use the **no** form of this command.

wildcard

no wildcard

Syntax Description

This command has no keywords or arguments.

Command Default

This command is enabled by default.

Command Modes

Bulkstat data set expression object configuration (config-bs-ds-expr-obj)

Command History

Release	Modification
15.3(1)T	This command was introduced.
15.3(1)S	This command was integrated into Cisco IOS Release 15.3(1)S.
Cisco IOS XE Release 3.8S	This command was integrated into Cisco IOS XE Release 3.8S.

Examples

The following example shows how to configure a wildcard instance using the **wildcard** command:

```
Device> enable
Device# configure terminal
Device(config)# bulkstat data interface-util type expression
Device(config-bs-ds-expr)# object 2
Device(config-bs-ds-expr-obj)# wildcard
```

Related Commands

Command	Description
conditional object	Defines a conditional object when evaluating an expression.
discontinuity object	Configures the discontinuity properties for evaluation of a Bulkstat object.
id	Configures the OID for an expression MIB output.
sample	Configures an object value to be used in evaluating an expression MIB output.